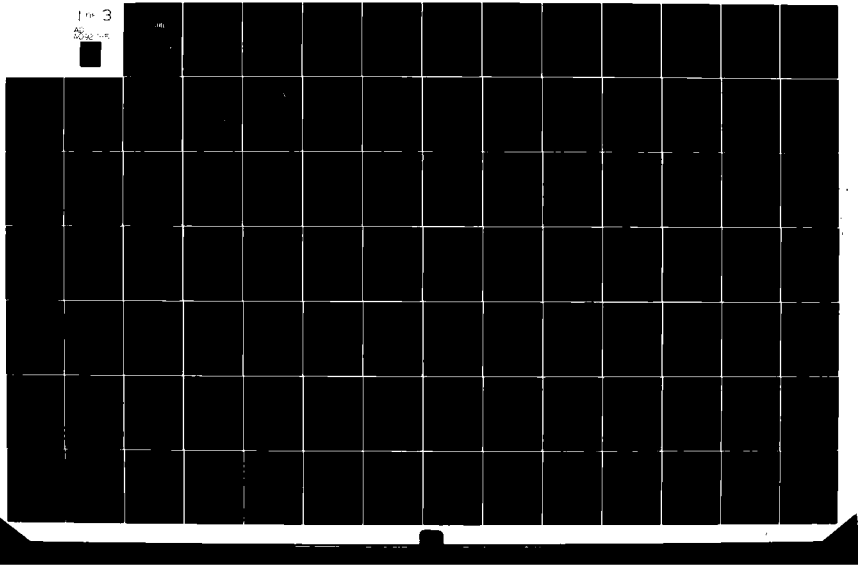
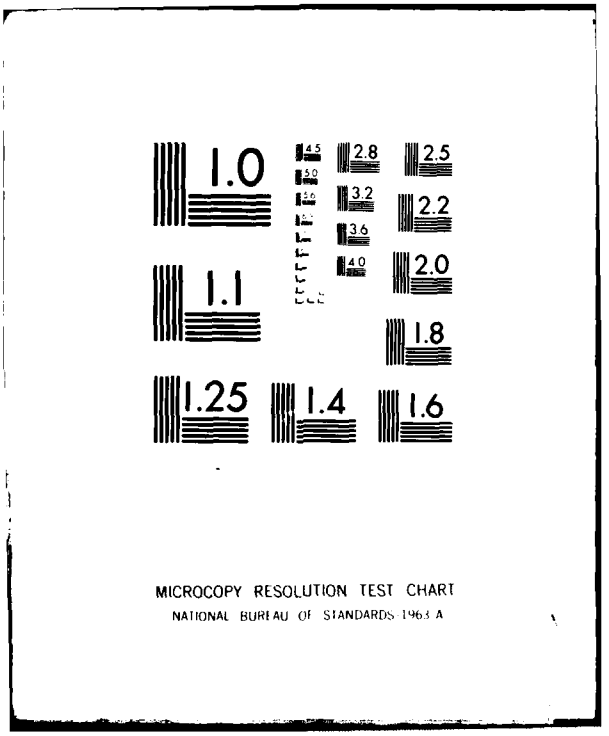
AD-A092 785 CORPS OF ENGINEERS SAN FRANCISCO CALIF SAN FRANCISCO--ETC F/G 13/2
NAVATO CENTER REGULATORY PERMIT APPLICATION BY NOVATO CENTER IN--ETC(U)
NOV 80

UNCLASSIFIED

NL

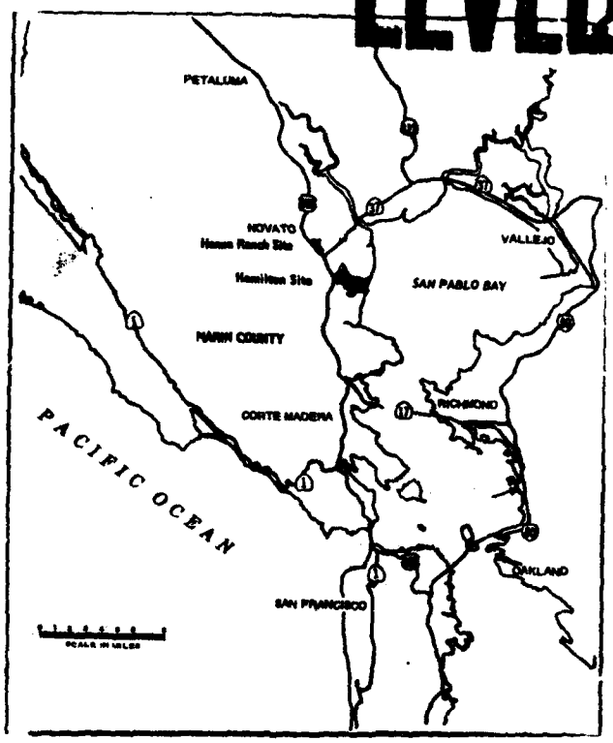



1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
4.5
5.0
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963 A

(12)

FINAL
ENVIRONMENTAL STATEMENT

NOVATO CENTER
REGULATORY PERMIT APPLICATION
BY NOVATO CENTER INC.
MARIN COUNTY, CALIFORNIA
PUBLIC NOTICE 10138-33R



U.S. ARMY ENGINEER DISTRICT, SAN FRANCISCO, CALIFORNIA

NOVEMBER 1980

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE	READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER / 2. GOVT ACCESSION NO. AD-A092785	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) (6) NOVATO CENTER REGULATORY PERMIT APPLICATION BY NOVATO CENTER INC. MARIN COUNTY, CALIFORNIA PUBLIC NOTICE 10138-33R.	5. TYPE OF REPORT & PERIOD COVERED (9) Final Environmental Statement.
	6. PERFORMING ORG. REPORT NUMBER
7. AUTHOR(s)	8. CONTRACT OR GRANT NUMBER(s)
9. PERFORMING ORGANIZATION NAME AND ADDRESS U.S. Army Corps of Engineers, San Francisco District 211 Main Street San Francisco, CA 94105	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS Office of the Chief of Engineers U.S. Department of the Army Washington, DC 20314	12. REPORT DATE August 1980
	13. NUMBER OF PAGES
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office) (12) 228	15. SECURITY CLASS. (of this report) Unclassified
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

Approved for Public Release: Distribution Unlimited

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

Regional Shopping Center

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Fill of approximately 39 acres of historic tidelands, including four acres of existing wetland for development of a regional shopping center in Novato, Marin County, California.

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

391022 DM

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
211 MAIN STREET
SAN FRANCISCO, CALIFORNIA 94105

SPNED-E/SPNCO-R

RESPONSE REQUIRED BY: DEC 24 1980

NOVATO CENTER FINAL ENVIRONMENTAL STATEMENT: COMMENT PERIOD 24NOV 1980

TO WHOM IT MAY CONCERN:

1. As announced in Public Notice No. 10138-33 (27 January 1978), Novato Center Inc., 1290 Howard Avenue, Burlingame, California 94010, has applied for a Department of the Army permit to fill historic and existing marsh to allow development of a regional shopping center. Since distribution of the Public Notice and Draft Environmental Statement, the project has been modified. The Final Environmental Statement serves as the revised Public Notice for the modified project. The project as presently planned would fill approximately 39 acres of former tidelands including 4 acres of existing brackish marsh, excavate approximately 7 acres to create new marsh, and excavate material from historic tidelands on an adjacent property to supply fill for the purpose of construction of a regional shopping center in Novato, California.

2. In response to the National Environmental Policy Act of 1969, Public Law 91-190, the San Francisco District, U.S. Army Corps of Engineers, has prepared a Final Environmental Statement (FES) for the subject permit application. The Draft Environmental Statement for this project was issued 25 July 1979.

3. The District is now soliciting comments and views of appropriate government agencies, interested groups and individuals concerning the FES. Please submit your comments to the District Engineer, San Francisco District, by the date indicated above so that they can be considered along with other relevant information in arriving at the final decision on the permit application. The final decision on the permit cannot be made until 30 days have passed from the announcement in the Federal Register that the FES has been filed with the Environmental Protection Agency or until 30 days from the mailing of the document, whichever date is later.

4. Copies of the FES are available for review by contacting the San Francisco District (415-556-0325) and at the Marin County Free Library, Civic Center and Novato branches.

Sincerely,

PAUL BAZILWICH, JR.
Colonel, CE
District Engineer

NOVATO CENTER
MARIN COUNTY, CALIFORNIA

REGULATORY PERMIT APPLICATION BY
NOVATO CENTER INC.
PUBLIC NOTICE 10138-33R

( ) DRAFT ENVIRONMENTAL STATEMENT (X) FINAL ENVIRONMENTAL STATEMENT

Responsible Agency: U.S. Army Engineer District, San Francisco
211 Main Street
San Francisco, CA 94105

Contact Person:

Dennis Cerese
Environmental Protection Specialist
Action Officer for Permit No. 10138-33
Regulatory Functions Branch
San Francisco District
Corps of Engineers
(415) 556-5426

Roger Golden
Environmental Protection Specialist
ES Coordinator
Environmental Branch
San Francisco District
Corps of Engineers
(415) 556-5412

1. Name of Action: (X) ADMINISTRATIVE ( ) LEGISLATIVE

2. Authority. Section 10 of the River and Harbor Act of 1899 and Section 404 of the Clean Water Act.

3. Description of Action. The applicant proposes to fill 35 acres of historic wetland and 4 acres of existing brackish marsh, determined to be important wetlands. The 39 acres proposed to be filled and an adjacent upland portion of the applicant's property are proposed as the site for a 69-acre regional shopping center. Approximately 4.9 acres of the existing marsh on the applicant's property would be retained and an additional 6.8 acres of historic marsh would be excavated to create new marsh. A 37-acre area would be excavated on an adjacent property owned by the State of California to provide a portion of the needed fill material. A lake would be created on the borrow site to be managed by the State for wildlife.

4. Environmental Impacts. Net gain of 2.8 acres of wetland habitat; reduction of floodplain, slightly increased flooding hazard for adjacent lands, potential seismic and settlement hazards, decreased quality of runoff, increased volume of runoff, decreased air quality, improved water quality in the marsh, increased traffic volumes, change in land use from open space to commercial use, increased demand for city services, increased revenue for the City of Novato, alteration of views from surrounding areas, provision of a regional shopping center, increased employment. Dedication of 12 acres of wetland to a public agency to be preserved as a marsh.

5. Alternatives Considered. No project, reduced project, development in accordance with City Zoning, alternate project site at Hamilton Air Force Base.

NOVATO CENTER
MARIN COUNTY, CALIFORNIA

REGULATORY PERMIT APPLICATION

TABLE OF CONTENTS

TABLE OF CONTENTS
(Cont'd)

TABLE OF CONTENTS
(Cont'd)

TABLE OF CONTENTS
(Cont'd)

TABLE OF CONTENTS
(Cont'd)

TABLE OF CONTENTS
(Cont'd)

TABLE OF CONTENTS
(Cont'd)

TABLE OF CONTENTS
(Cont'd)

TABLE OF CONTENTS
(Cont'd)

LIST OF TABLES

TABLE OF CONTENTS
(Cont'd)

PLATES

APPENDICES

1.00 INTRODUCTION

1.01 Novato Center, Inc., Richard Hanna, President, 1290 Howard Avenue, Burlingame, California 94010, has applied for a Department of the Army Permit (Application and Public Notice No. 10138-33, Appendix B, Documents B-1, B-2, revised 5 August 1980, Document B-F) to:

- place 300,000 to 400,000 cubic yards of additional fill material on 39 acres of historic tidelands and including four acres of existing brackish marsh;

- excavate approximately 390,000 cubic yards of material for fill from historic tidelands on an adjacent property creating a 37-acre lake;

- place approximately 300,000 cubic yards of additional fill material on the site to be supplied from off-site quarries.

-excavate 6.8 acres of historic tidelands to create new marsh on the southern end of the project site.

- control water circulation and improve security on the adjacent State-owned parcel by excavation of a feeder ditch, a security ditch, construction of a berm, and installation of inlet and outlet control structures. (See document B-6, Appendix B).

The subject property is known locally as Hanna Ranch, and is located in the city of Novato, California as indicated on Plate 1.

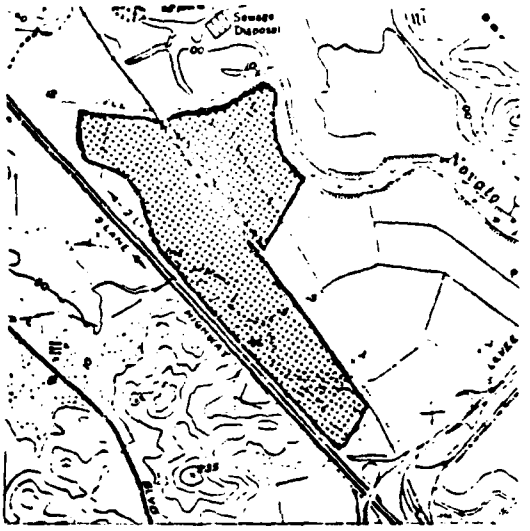
1.02 A portion of the 39 acres of former tidelands proposed to be filled and an adjacent filled portion of the Hanna property are proposed as the site for a 69-acre regional shopping center to be built, owned, and operated by Ernest W. Hahn Inc., of Hawthorne, California. Ernest W. Hahn Inc.'s purchase of the site would be contingent upon the receipt of all necessary permits for development. The existing and newly created wetlands on the site would be dedicated to the city of Novato to be preserved as a marsh.

1.03 Planning Alternatives. The Draft Environmental Statement (July 1979) considered impacts expected from the proposed project and from four alternative proposals including alternative uses of the proposed site and an alternative location for a regional shopping center. Since publication of the Draft Environmental Statement, the proposed project has been modified in response to concerns raised by federal and state agencies and individuals. The new proposal is called Alternative #2R. The new proposal reduced the wetland area to be filled by one half, created a new wetland area at the southern end of the property to be managed for wildlife, and modified the proposed freeway on-ramp configuration. These changes have not completely resolved the objections of commenting agencies. The U.S. Fish and Wildlife Service and the National Marine Fisheries Service are on record as objecting to the revised proposal. Impacts of this new proposal are discussed throughout the text of this Final Environmental Statement. Additionally, new information has become available regarding the feasibility of Alternatives #3 and #5 as they were presented in the Draft ES. This information is incorporated in the appropriate sections of the text. Each of the Alternatives is described below. Study areas are indicated on Plate 2.

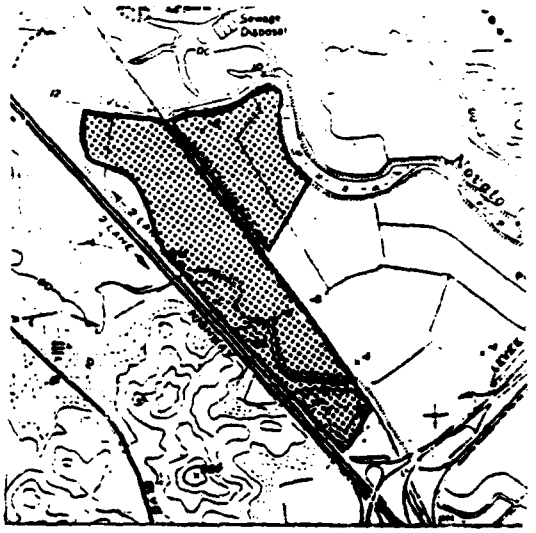
1.04 Alternative #1. No project. This proposal will consider the effects of no additional fill or development on any portion of Study Area 1. The entire study area would remain in its existing undeveloped state for the foreseeable future.

1.05 Alternative #2R. Proposed Project. This proposal will consider construction of a 69-acre regional shopping center (with about 814,000 square feet of leasable retail space) as proposed by Ernest W. Hahn Inc., including fill of the southern portion of Study Area 2 and excavation of 37 acres east of the railroad tracks to provide a portion of the needed fill material. Four acres of the existing slough on the site would be retained and an additional 6.8 acres of historic wetland would be excavated to create a new wetland area. The total of approximately 12 acres of on-site wetland would be dedicated to the City of Novato for preservation. A 37-acre lake would be created in the borrow area. This alternative would involve a change in zoning for the area south of Lynwood Slough from industrial to commercial. Plate 3 is a site plan for the proposed project.

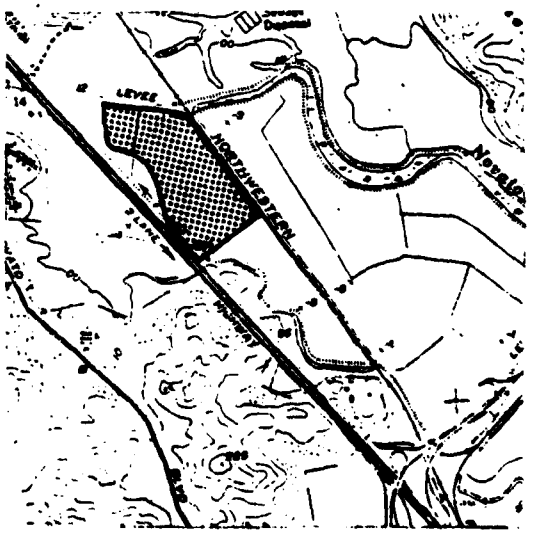
1.06 Alternative #3. On-Site Project: Reduced Area Coverage. This proposal will consider construction of a regional shopping center with 814,000 square feet of leasable retail space on the portion of the study area outside of Corps jurisdiction, 53 acres, north of Lynwood Slough. No further fill south of the slough and no excavation of material from the area east of the railroad tracks will be included in this alternative. In this alternative, the shopping center would be split by Rowland Boulevard. The mall, department stores and parking facilities would all be two level structures. This alternative is no



ALTERNATIVE # 1



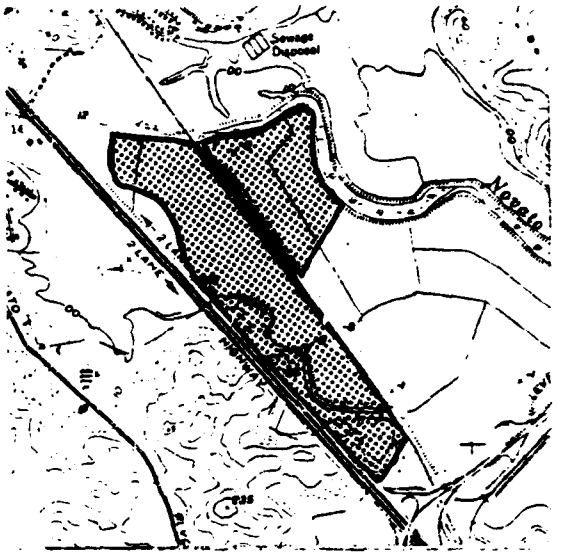
ALTERNATIVE # 2 R



ALTERNATIVE # 3

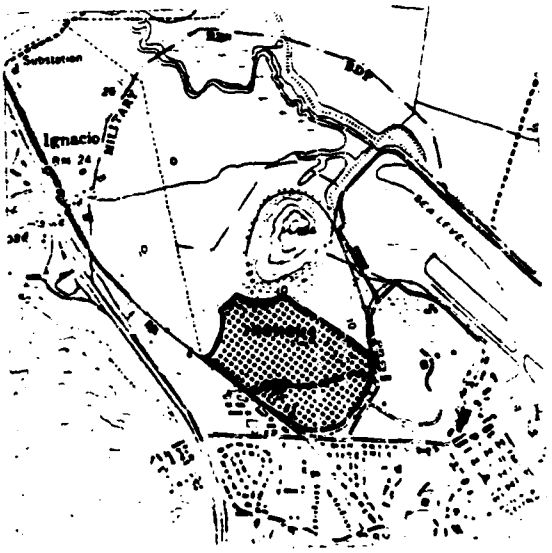
longer considered feasible due to the problems regarding site configuration, circulation and economics. (See the sections on Traffic/Circulation, Economics).

1.07 Alternative #4. Development in Accordance with Current City Zoning. This alternative will consider development of a regional shopping center north of Lynwood Slough and industrial development on the 92 acres south of the slough (Study Area 4). This alternative would require fill south of the slough, and would probably include excavation east of the railroad to supply the fill material and creation of a lake, as in Alternative #2R. Office and professional service use of the area north of Lynwood Slough would also be consistent with current city zoning, however these alternatives were not considered in this statement.



ALTERNATIVE # 4

1.08 Alternative #5. Hamilton Air Force Base. This alternative will consider the impacts of a proposed 77-acre shopping center located at Hamilton Air Force Base (Study Area 5). Most of the base has been determined to be surplus Federal property. The Base will be disposed of in accordance with the Memorandum of Decision for the disposal and use of Hamilton Air Force Base issued by the U.S. General Services Administration on 24 June 1980. The Memorandum determined that the portion of the Base considered as an alternative shopping center site in this ES will be sold to the City of Novato and Marin County for development as determined by those agencies. The City of Novato and the County of Marin have not yet developed a planning proposal for the Base. Finalization of development plans and construction of adequate freeway access to the site will take several years. For these reasons, the construction of a regional shopping center at the Base is not currently considered feasible.



ALTERNATIVE # 5

1.09 An additional alternative, construction of a regional shopping center in downtown Novato was considered initially, but rejected because of the lack of a developable land site large enough to accomodate the proposed project. The City of Novato's 1970 Downtown Plan and Program included a proposal for a City financed regional shopping center on the Pinheiro property at the corner of Redwood Boulevard and Olive Avenue. This proposal is no longer considered feasible by the City due to the cost of property acquisition, relocation of existing housing and businesses, the need to construct a pedestrian way over Redwood Boulevard and the difficulty of financing the project after the passage of proposition 13 (a property-tax limitation measure).

1.10 Decision Alternatives. There are the two following decision alternatives available to the Corps:

a. Denial of Permit - this corresponds to Planning Alternatives Nos. 1, 3, 4 or 5.

b. Issuance of Permit - this corresponds to Planning Alternative No. 2R.

1.11 SUMMARY OF SIGNIFICANT IMPACTS

1.12 Alternative #1.

- Non-fulfillment of the goals of the City of Novato General Plan.

1.13 Alternative #2R.

a. Geology/Seismicity.

- Potential for differential settlement causing damage to proposed structures, utility lines, drainage channels and sewers.

- Potential for damage to proposed structures and infrastructure in the event of an earthquake.

- Potential for ground failure (liquefaction, lateral spreading lurching) if ground shaking occurs.

b. Hydrology.

- Reduction in on-site storage potential by 360 acre-feet thus increasing off-site flood hazard to Scottsdale Pond, Highway 101, the Rowland Boulevard interchange and Highway 37.

- Potential flooding of parking areas by extremely high tides should the Novato Creek levees fail.

- Potential for large floodflows across the site and flooding of Rowland Boulevard interchange, if the two culverts crossing the site are obstructed by debris or their flow capacity is otherwise reduced during a large flood on Novato Creek.

c. Water Quality.

- Increased surface runoff from the project site into Novato Creek.

- Decreased quality of runoff from on-site pollutants (litter, oil, fertilizer, pesticides, animal wastes).

- Increased erosion and turbidity in runoff during construction activities.

- Improved water quality in the "Ecological Preserve" at the southern end of the property.

d. Vegetation and Wildlife.

- Destruction of approximately four acres of brackish marsh and excavation of an additional 6.8 acres to create a new wetland area for a net gain of 2.75 acres of wetland.

- Creation of a 37-acre lake with bordering marsh vegetation on the state land east of the railroad line.

- Installation of water control devices to allow restoration of tidal marsh to the southern portion of land owned by the State Lands Commission.

e. Traffic/Circulation.

- Increased traffic congestion on U.S. 101 south of the State Route 37 interchange.

f. Air Quality.

- Hydrocarbon and nitrogen dioxide emission concentrations for the subregion exceed the Ambient Air Quality Standards.

- Temporary decrease in air quality during project construction due to equipment emissions, dust and particulates.

g. Land Use Plans.

- Alteration of the site from open space to intensive urban use.

- Creation of major commercial competition to downtown Novato business district.

- Change in zoning from industrial to commercial use for the portion of the site south of Lynwood Slough requiring an amendment to the City of Novato General Plan.

h. Employment.

- Creation of about 2,000 jobs.

i. Economics.

- Projected generation of surplus revenue over costs to the City of Novato.

j. Public Services/Utilities.

- Increased consumption of gas, electricity and water.

- Increased wastewater generation.

- Increased need for police and fire services.

k. Visual Quality.

- Alteration of the view of the bay plain.

- Reinforcement of expanding strip commercial development along Highway 101.

l. Community Cohesion.

- Provision of a regional shopping center for area residents.

- Potential adverse economic impact on business in the downtown commercial area.

1.14 Alternative #3.

a. Geology/Seismicity.

- Potential for differential settlement causing damage to structures, utility lines and sewers. Increased settlement due to the greater depth of underlying bay mud and the concentrated loads of the two-story mall.

- Potential for ground failure (liquefication, lateral spreading, lurching) if ground shaking occurs causing damage to structures.

b. Hydrology.

- Reduction in on-site storage potential.

- Potential for shallow flooding of parking areas by extremely high tides should the Novato Creek levees fail.

c. Water Quality.

- Increase in on-site surface runoff into Novato Creek.

- Decrease in quality of surface runoff due to contaminants from engineered surfaces.

d. Traffic/Circulation.

- Increased traffic congestion on U.S. 101 south of the State Route 37 interchange.

e. Air Quality.

- Hydrocarbon and nitrogen dioxide emission concentrations for the subregion exceed the Ambient Air Quality Standards.

- Temporary decrease in air quality during project construction due to equipment emissions, dust and particulates.

f. Land Use Plans.

- Conformance with current city zoning.

- Conversion of open space to urban use.

- Creation of major commercial competition to downtown Novato business district.

g. Employment.

- Creation of about 2,000 jobs.

h. Economics.

- Projected generation of surplus revenue over costs to the City of Novato.

i. Public Services/Utilities.

- Increased consumption of gas, electricity and water.

- Increased waste (wastewater, solid wastes) generation.

- Increased need for police and fire services.

j. Visual Quality.

- Alteration of the view of the bay plain.

- Reinforcement of expanding strip commercial development along Highway 101.

k. Community Cohesion.

- Provision of a regional shopping center for area residents.

- Potential adverse economic impact on businesses in the downtown commercial area.

1.15 Alternative #4.

a. Geology/Seismicity.

- Potential for differential settlement causing damage to proposed structures, utility lines, drainage channels and sewers.

- Potential for damage to proposed structures and infrastructure in the event of an earthquake.

- Potential for ground failure (liquefaction, lateral spreading, lurching) if ground shaking occurs.

b. Hydrology.

- Reduction in on-site storage potential by 350 acre-feet increasing off-site flood hazard to Scottsdale Pond, Highway 101, the Rowland Boulevard interchange and Highway 37.

- Potential flooding of parking areas by extremely high tides should the Novato Creek levees fail.

- Potential for large flood flows across the site and flooding of Rowland Boulevard interchange, if the culverts crossing the site are obstructed by debris or their flow capacity is otherwise reduced during a large flood on Novato Creek.

c. Water Quality.

- Increased surface runoff from the project site into Novato Creek.

- Decreased quality of runoff from on-site pollutants (litter, oil, fertilizer, pesticides, animal wastes).

- Increased erosion and turbidity in runoff during construction activities.

d. Vegetation and Wildlife.

- Destruction of eight acres of brackish marsh.

- Destruction of approximately fifteen acres of oak woodland.

- Creation of a 37-acre lake with some marsh vegetation on the state land east of the railroad line.

e. Traffic/Circulation.

- Increased traffic congestion on U.S. 101 south of the State Route 37 interchange.

f. Air Quality.

- Impacts would be greater than Alternative #?R.

- Temporary decrease in air quality during project construction due to equipment emissions, dust and particulates.

g. Land Use Plans/Policies.

- Conflict with Federal policy on modification of floodplains.

- Conflict with Corps policy on destruction of wetlands.

- Conversion of open space to intensive urban use.

- Creation of major commercial competition to downtown Novato business district.

h. Employment.

- Creation of about 2,000 jobs associated with the shopping center and an undetermined number of jobs associated with industrial development.

i. Economics.

- Probable generation of surplus revenue over costs to the City of Novato.

j. Public Services/Utilities.

- Increased consumption of gas, electricity and water.

- Increased wastewater generation.

- Increased need for police and fire services.

k. Visual Quality.

- Alteration of the view of the bay plain.

- Reinforcement of expanding strip commercial development along Highway 101.

l. Community Cohesion.

- Provision of a regional shopping center for area residents.

- Potential adverse economic impact on businesses in the downtown commercial area.

1.16 Alternative #5.

a. Geology/Seismicity.

- Potential for differential settlement causing damage to proposed structures, utility lines, drainage channels and sewers.

- Potential for damage to proposed structures and infrastructure in the event of an earthquake.

- Potential for ground failure (liquefaction, lateral spreading, lurching) if ground shaking occurs.

b. Water Quality.

- Increased surface runoff from the project site into Pacheco Creek.

- Decreased quality of runoff from on-site pollutants (litter, oil, fertilizer, pesticides, animal wastes).

- Increased erosion and turbidity in runoff during construction activities.

c. Vegetation and Wildlife.

- Destruction of approximately 10 acres of riparian vegetation.

d. Traffic/Circulation.

- Increased congestion on Highway 101.

- Increased congestion at the Bel Marina Keys and Nave Drive

e. Air Quality.

- Hydrocarbon and nitrogen dioxide emission concentrations for the subregion exceed the Ambient Air Quality Standards.

- Temporary decrease in air quality during project construction due to equipment emissions, dust and particulates.

f. Employment.

- Creation of about 2,000 jobs.

g. Economics.

- Probable generation of surplus revenues over costs to the city of Novato.

h. Public Services/Utilities.

- Increased consumption of gas, electricity and water.

- Increased wastewater generation.

- Increased need for police and fire services.

i. Community Cohesion.

- Provision of a regional shopping center for area residents.

- Potential adverse economic impact on business in the downtown commercial area.

1.17 Comparison of Alternatives.

Impact	Alternatives*				
	1	2R	3	4	5
Geology/Seismicity	0	-	-	-	-
Hydrology	0	-	-	-	-
Water Quality	0	+	-	-	-
Vegetation and Wildlife	0	+	0	-	-
Traffic/Circulation	0	-	-	-	-
Air Quality	0	-	-	-	-
Noise	0	0	0	0	0
Land Use Plans	-	-	+	+	0
Population/Housing	0	0	0	0	0
Employment	0	+	+	+	+
Economics	0	+	+	+	+
Public Services/Utilities	0	-	-	-	-
Visual Quality	0	-	-	-	0
Cultural Resources	0	0	0	0	0
Recreation	0	0	0	0	0
Community Cohesion	0	+	+	+	+

+ Beneficial Impact
0 No Significant Impact
- Adverse Impact

*The alternatives are: (1) No Project; (2R) Proposed Project; (3) Reduced On-Site Project; (4) Development in Accordance with Current City Zoning; and (5) Hamilton Air Force Base.

1.18 Purpose Of and Need For the Proposal. The purpose of the proposal to fill approxiately 39 acres, in conjunction with the use of an adjacent filled area, is to develop a regional shopping center on approximately 69 acres. The regional shopping center would consist of an enclosed mall with three major stores and many smaller stores. Market analysis studies have indicated that at the time the proposed regional shopping center opened in 1982 there would be adequate market potential and sufficient major department store tenants to ensure market feasibility.

1.19 Authority. The Army's authority over the Hanna Ranch site (Study Areas 1-4) is based upon Section 10 of the River and Harbor Act (RHA) of 1899 (33 U.S.C. Sec. 403) and upon Section 404 of the Clean Water Act (33 U.S.C. Sec. 1344) which pertains to the discharge of dredged or fill material into the waters of the United States. In Leslie Salt Co. vs. Froehlke, 578 F.2d 742, 753 (9th Cir. 1978), the court held that the Corps' jurisdiction under the RHA extends to all lands covered by the ebb and flow of the tide to the mean high water (MHW) mark in its unobstructed, natural state, including diked areas below former MHW. Section 10 regulates any work or structure placed within this jurisdiction.

1.20 Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits, after notice and opportunity for public hearings, for the discharge of dredged or fill material at specified disposal sites into all waters of the United States, including adjacent wetlands, the degradation or destruction of which could affect interstate commerce.

1.21 At the Hanna Ranch site (Study Areas 1-4) Section 404 authority is claimed over the nine acres of brackish marsh of the old Lynwood Slough. Section 10 authority is claimed over the 56 acres of former tidelands south of Lynwood Slough, including the 9 acres of wetland and on the land east of the railroad proposed as a borrow area and mitigation site.

1.22 The Hamilton Air Force Base site considered under Alternative #5 is outside of Corps jurisdiction.

1.23 Purpose of Final ES. In response to the provisions of the National Environmental Policy Act of 1969, Public Law 91-190, 42 U.S.C. Sec. 4321 et seq, an evaluation of the impacts of the proposed activities on all aspects of the quality of the human environment is required prior to any permit application being considered for approval. This Environmental Statement addresses such an evaluation of the Novato Regional Shopping Center.

1.24 An important source of information for this Final Environmental Statement was the "Novato Regional Shopping Center Final Environmental Impact Report" prepared for the City of Novato (September 1979). The Final EIR is incorporated by reference into this Environmental Statement. The City has adopted the Final EIR, but has not granted final approval for implementation of the Novato Center project and planning for various elements of the project are in preparation by the City at this time. A Corps permit cannot be issued unless local authorization (Master Plan approved) is obtained.

1.25 An important source for information on the Regional Shopping Center proposed for Hamilton Air Force Base (Alternative #5) was the "Draft EIS on Disposition and Use of Federal Surplus Property on Hamilton Air Force Base" prepared by A. D. Little Inc., for the U. S. General Services Administration, April 1979. The Draft EIS is incorporated by reference into this Environmental Statement.

1.26 Interrelationship and Compatibility of the Project with Existing or Proposed Corps and Other Federal Projects.

1.27 Novato Creek Flood Control Study. A negative report is currently being prepared by the Corps of Engineers on a study of flood control measures for Novato Creek. The flood control measures studied were determined to be economically unjustified.

1.28 EIR/EIS on the Disposition of the Hamilton Air Force Base. On behalf of the General Services Administration, an EIR/EIS concerning the possible disposition (future use) of the Hamilton Air force Base was prepared. (Draft released in April 1979, Final released February 1980.) The EIR/EIS considered the Marin County plan for the base (subsequently withdrawn) as well as industrial commercial development without an airport, residential use, and public use. A shopping center at Hamilton may be expected to provide significant competition to the proposed project, if both were built, which is highly unlikely.

1.29 Federal and State Policies and Regulatory Requirements.

1.30 Chief of Engineers Wetland Policy. This policy declares wetlands will be evaluated with respect to the complete and interrelated wetland area. (A wetland evaluation of this project is presented in Appendix D.) No construction activity will occur in wetlands delineated as important to the public interest, unless the District Engineer concludes the benefits of the alteration outweigh the damage to the wetlands and the alteration is necessary to realize the benefits. The District Engineer must demonstrate the need to locate the project in the wetland and must evaluate the availability of feasible alternative sites.

1.31 Chief of Engineers, Floodplain Management Policy. This policy as stated in the Engineer Regulations for "Implementation of Executive Order 11988 on Floodplain Managment" requires an evaluation of the flood hazard and the effect an action in the floodplain may have on the floodplain environment through the public interest review process. Existing policies and procedures related to the regulatory program fulfill the requirements and intent of Executive Order 11988. Such an evaluation is included in the hydrology section of this FES.

1.32 State of California Wetland Policy. This policy recognizes the value of marshlands and other wetlands. Basically, the Resources Agency and its various departments will not authorize or approve projects that fill or otherwise harm or destroy coastal, estuarine, or inland wetlands. Exceptions may be granted if all the following conditions are met: (1) project is water dependent; (2) no feasible, less environmentally damaging alternative is available; (3) the public trust is not adversely affected; and (4) adequate compensation is part of the project. Compensation measures must be in writing and long-term "wetlands habitat value" of involved project and mitigation lands must not be less after project completion.

1.33 In a 23 August 1978 letter to the Corps (Document B-4 Appendix B) the State Resources Agency indicated that "a negotiated written agreement was reached between the applicant and the State, prior to the development of the State's Wetland Policy, and as a result the State does not object to your issuance of the subject permit." The agreement is described in paragraph 1.12.

1.34 Additional State Requirements.

- The proposal to fill Lynwood Slough would require a streambed alteration permit from the Department of Fish and Game.

- The Regional Water Quality Control Board may require certification of the project.

- The proposed extension of Rowland Boulevard is within the U.S. Highway 101 right-of-way and will require an encroachment permit from the California Department of Transportation. Preliminary negotiations are now underway between the applicant and CALTRANS.

2.000 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

2.001 Setting and Project History. The City of Novato is in Marin County about 29 miles north of San Francisco. Study Areas 1-4 (Plate 2) are located immediately east of the Rowland Boulevard freeway interchange on U. S. Highway 101. These Study Areas are bound on the north by Novato Creek. The eastern boundary for Study Areas 1 and 3 is the Northwestern Pacific Railway right-of-way. Study Areas 2 & 4 include a borrow area east of the railroad. The eastern boundary of the borrow area, as proposed, is Novato Creek.

2.002 The Hanna Ranch site consists of lowlands behind dikes. Fill has previously been placed over the 53 acres of the site north of Lynwood Slough. Of the former tideland south of Lynwood Slough, 48 acres are grassland and 9 acres are seasonal brackish marsh.

2.003 In 1973 a development proposal for the entire 454 acres of Hanna Ranch was submitted to the City of Novato. During review of the development plans the question of title to the lands arose with the State Lands Commission. In February 1977, the State Lands Commission and Novato Center Inc., consummated a title settlement and land exchange agreement in lieu of litigation. Of the 405-acre parcel in question, the State received title to 278 acres east of the Northwest Pacific Railroad rightof-way and Novato Center received title to 127 acres west of the railroad. Provisions were incorporated in the settlement agreement for excavation of up to 500,000 cubic yards of fill material by Novato Center Inc., from the "State Parcel." The excavation shall be conducted according to plans and specifications of the State. A copy of the title agreement is in Appendix B.

2.004 The Hamilton Air Force Base site (Alternative #5) is approximately 3 miles south of the Hanna ranch site, east of Highway 101. The Hamilton site consists of rolling hills descending to the bay plain and tidal marsh. Portions of the marsh have been filled for military aircraft use and structures have been built on much of the upland areas. The regional shopping center is proposed on an upland site.

2.005 The Air Force Base was decommissioned in 1974. The County of Marin made a formal application to GSA for acquisition of much of the property for a public airport with related land developed for commercial industrial uses, including a 77-acre regional shopping center. That application was withdrawn by the County in May 1979 because of local concern over the economic and environmental risks of an airport on the site. GSA has issued a Draft and Final Environmental Statement regarding potential future uses of the site. A decision for transfer of the lowland portions of the site to the U.S. Fish and Wildlife Service was announced on 2 July 1980. Most of the upland portion of the Base (including Study Area 5) will be sold to the City of Novato and the County of Marin for development as planned by those agencies.

2.006 GEOLOGY/SEISMICITY

2.007 Present Conditions.

2.008 General. Hanna Ranch (Study Areas #1-4) and Hamilton Air Force Base (Study Area #5) are located approximately three miles apart and as such are included in similar geological environments. Both sites are underlain by Quaternary Bay and marshland deposits and alluvium, all of which overlie Franciscan rocks located at varying depths. Locally, these rocks, as well as geologic structures, are concealed by a thick sequence of alluvial sediments, which are of both marine and continental origin. A large portion of the young overlying sediments are derived from nearby hills and valleys. The youngest sedimentary deposits occurring in the area are found on the flat bay plains in the southeastern part of the Novato area. These deposits are former marshlands which consist of relatively soft, unconsolidated silty sands, clays, and peats locally known as younger Bay Mud. The Bay Muds within the general area occupy the flood plain of Novato Creek and other adjacent natural drainage systems. Recent surficial deposits consist of stream sediments and artificial fills.

2.009 The San Francisco Bay Area is located in a seismically active region. The seismic activity is well documented historically and occurs as individual sudden movements on faults resulting in earthquakes and also as fault creep. The strongest seismic intensity experienced in the vicinity of the study areas from any of these faults was a X (Modified Mercalli) during the 1906 San Andreas event. Three major fault zones are located within the bay area: the San Andreas Fault west of San Francisco Bay, the Hayward Fault at the western base of the Berkeley Hills, and the Calaveras Fault along the east side of the Berkeley Hills. All are active and considered a part of the San Andreas Fault system. All the study areas lie within this fault system (Plate 10), with the San Andreas Fault located about 14 miles to the southwest, and the Hayward and Calaveras Faults located approximately 10 and 35 miles to the southeast, respectively. Other faults in the region that are considered to have been active during Quaternary time include the Burdell Mountain fault, whose mapped location is shown slightly to the northeast of the study areas, and the Tolay and Rogers Creek Faults about 6 and 7.5 miles to the northeast, respectively. The only known active faults near the study areas are those within the Burdell Mountain Fault Zone, a geologically young fault zone occuring northeast of the Hanna Ranch Site. This zone constitutes the faulted contact between relatively young volcanic rocks of Tertiary age and the relatively old rocks of the Franciscan and the Novato Conglomerate formations, both of Mesozoic age. The only seismic indication of possible fault activity along the Burdell Mountain Fault Zone during recent time is the alignment of a few minor (less than magnitude 3) earthquake epicenters during the last 40 years (Rice, 1974). However, this fault also has considerable geologic field evidence of younger sediment displacements, suggesting that it is an active fault. The traces of the individual faults within this zone can be readily located in some of the upland areas north of Novato, although extensions of these faults through the bay plains and marshland can only be projected from the upland areas (Rice, 1973). Two other faults have been mapped near the study areas. The inferred locations show the Novato Valley and Indian Valley faults as being near or under the northeast side of the Hanna Ranch site and slightly

southwest of the Highway 101 Ignacio Interchange, respectively. However, the location of these faults is not conclusively known as both are covered with alluvium. Neither fault is considered to have been active during Quaternary time.

2.010 Other effects resulting from fault activity at both study areas include liquefaction and tsunamis. Liquefaction potential is generally highest in partially saturated or saturated cohesionless, fine-grained soils. Exploratory borings at the Hanna Ranch site indicate the presence of saturated sand lenses underlying portions of the project site (Cooper and Clarke, 1974). Such sand lenses may also occur at Hamilton Air Force Base (Rice, 1975). Soils boring data on adjacent sites confirms the great variability of the subsurface material in the region (Dames and Moore, 1961, and Cooper-Clarke, 1972).

2.011 Tsunamis are sea waves generated principally by seismic disturbances. Historically, the tsunamis that have reached the California coast have originated in areas around the Pacific such as Chile, Japan, and Alaska and were caused by earthquakes in or near the ocean. California earthquakes have not generated any recorded tsunamis. The most recent tsunamis to strike the northern California coast occurred in 1960 and 1964 when tsunamis were generated by earthquakes with epicenters in Chile and Alaska, respectively.

2.012 A recent study (Department of the Army, 1975) indicates that a 100-year tsunami would have a runup in San Pablo Bay, adjacent to the two study areas, of 3.7 feet (mean sea level datum). A 500-year tsunami would have an estimated runup of 5.1 feet.

2.013 Mineral Resources. No significant mineral resources are located within the limits of the study areas.

2.014 Alternatives #1-4. The major portion of Study Areas 1-4 is relatively flat-lying. The surface slopes gently southward from a maximum elevation of 15 feet mean sea level (msl) to 5 feet msl except for the area south of Lynwood Slough where the lowest elevation is 1-2 feet below msl. Test borings indicate that the soft bay muds in the vicinity of the Hanna Ranch site are comprised of a thin, moderately firm upper crust (dessication), underlain by up to 50 feet of relatively soft, unconsolidated, saturated silty clays and sands containing lenses of organic material. Borings in the northern part of the site revealed 17-34 feet thicknesses of soft bay mud underlain by 16-28 feet in thickness of older alluvium. Bedrock was encountered at 51 and 61-foot depths (Goldman 1969, Cooper Clarke, 1976). These sediments increase in thickness to the northeast toward San Pablo Bay. Artificial fills have been placed over portions of the site and vary in thickness from 1-2 feet in the area 100-200 feet south of Lynwood Slough up to 8-10 feet in the extreme northern portion.

2.015 Alternative #5. Two geomorphic zones exist at Hamilton Air Force Base (HAFB). Low hills located along the westerly edge of the area mark the boundary between the bay plain and the Franciscan upland to the west. The proposed shopping center site is located on a relatively flat-lying portion of the bay plain near the separation of the bay plain - upland areas at about

elevation 20 feet (msl). The site is underlain by alluvial deposits (of unknown thickness) comprised of variable accumulations of unconsolidated clay, silt, sand and gravel. The alluvium is underlain by soft bay muds (also of indeterminant thickness) consisting of unconsolidated, saturated silty clays and lenses of sand and peat. Older alluvium may underlie bay mud in some areas. Bay muds at the HAFB have been estimated to be 60 feet thick (Treasher, 1963) and 100 feet thick (Rice, 1975). Investigations will be required to delineate the areal distribution and classification of the sediments underlying the site before any building permits can be issued.

2.016 Impacts.

2.017 Seismicity. Seismic activity is continuing so it can be expected that the study areas will be periodically subjected to varying intensities of shaking as a result of earthquakes originating along the active fault systems within the Bay Area. Strong motion can be expected at the study areas, from large magnitude earthquakes. Ground motion during earthquakes may cause embankment or slope spreading and, in some cases, overall slope failures. Based on the effects of ground motions induced by past earthquakes on mate- rials similar to those underlying the study areas, localized ground failure in the form of lurching, cracking or subsidence near channels or sloughs may occur. In general, ground shaking during earthquakes tends to be more severe in typical filled marshland areas than in firmer soil areas. There are no known active earthquake faults directly beneath the study areas that would present the risk of surface rupture.

2.018 Liquefaction. The presence of saturated sand lenses at the Hanna Ranch site (Study Areas #1-4) presents the potential for liquefaction in parts of the site. The presence and areal distribution of soil horizons with the potential for liquefaction or the absence of such layers is not well defined for the project sites. However, soils boring data on adjacent sites indicates a great variability of subsurface material (Dames and Moore, 1961 and Cooper-Clarke, 1972). Detailed investigations will be required prior to final design of structures in order to delineate areas with liquefaction potential. Abundant evidence from many great earthquakes throughout the world has shown that damage to buildings and utilities tends to be considerably greater when they are located in deep, loose, compressible deposits such as soft Bay Mud, than when they are on hard bedrock sites (Rice, 1973).

2.019 Tsunami Potential. The Hanna Ranch site is protected by levees with a low point of approximately 6.5 feet in elevation (msl). The Hamilton Air Force Base site (Study Area #5) is about elevation 20 feet (msl). The estimated runup of a 100-year tsunami is 3.7 feet, and the estimated runup of a 500-year tsunami is 5.1 feet (Department of the Army, 1975). Therefore, there should not be any adverse impacts from tsunami runup.

2.020 Settlement. The bay sediments underlying the project sites consist of soft, highly compressible, unconsolidated, saturated, silty clays and sands containing organic material. Sustained loading by artificial fill material and man-made structures will cause substantial long-term settlement of these features. Differential settlement may result from the variable thickness of the Bay Mud as well as variations of the soil conditions, original and present topography, construction procedures and method of loading.

2.021 Surcharging will reduce the amount of settlement expected after project completion. The weight of the two-story mall, and parking structures proposed under Alternative #3 would require additional surcharging over that which would be needed by Alternatives 2R, 4, and 5. Pile foundations would also be required for Alternative #3 to support the concentrated loads of the parking structures and mall bridge over Rowland Boulevard. Differential settlement on the order of 3 to 4 feet in 50 years would be anticipated.

2.022 HYDROLOGY [1/]

2.023 Present Conditions.

2.024 Alternatives #1-4. The existing hydrologic setting of the project site is substantially different from the natural hydrologic conditions that existed before the Novato area was settled and developed. The area has been transformed from natural marshland where floodwaters from the surrounding watershed had little hydrologic effect to dry land where local runoff and, in particular, floodwaters from Novato Creek are a major constraint on development.

2.025 The local watershed of Lynwood Slough has been extensively urbanized in the last few years. Scottsdale Pond has been constructed in the low lying area immediately to the west of the freeway (U.S. 101) and acts as a retention basin for flood waters from the immediate watershed.

2.026 The Hanna Ranch itself is now also used as a flood storage basin for floodwaters from the Novato Creek watershed. The maximum level to which water can be ponded is approximately 7 feet msl, just slightly above the lowest weir in the south bank of Novato Creek. During construction of the U. S. 101 freeway, fill was taken from an area on the east side of the railroad tracks creating two ponds which act as retention ponds for the new Lynwood Slough pump station.

2.027 The flooding potential on the project site is determined by three causes, high tides, local runoff, and Novato Creek overflow. Plate 4, from a study by the U.S. Department of Housing and Urban Development, shows the potential area of inundation from the 100-year flood from these three causes acting independently or in combination. The flood elevation on site is determined to be 7.0 feet msl.

2.028 High Tides. If tides exceed 6.5 feet, flooding would occur in the project area to the south of the new Lynwood Slough channel to depths of 8 feet and up to 4 feet deep on the southern end of the area that has already been filled.

2.029 At this time, there has been no technical evaluation of the strength of the Novato Creek levees. However, it appears that because of their age, settlement, and probable method of construction, they have a high potential risk of failure during flood conditions and/or high tides. The exact age of the levees is not known but estimated to be 50 to 75 years old. Presently the southerly levee top varies between elevation 8 and 10 feet and of a width to accommodate a service road on top. There is no reported evidence of any erosion or scour along the section of the levee which would effect the project

1/ The Hydrology discussion for the alternatives at the Hanna Ranch site is adapted from a report prepared by Dr. Philip B. Williams, P. E., for Environmental Impact Planning Corporation (November 1978).

area. The northerly levee is slightly lower than the southerly levee, which would allow overtopping and flow easterly into the Deer Island Area (Marin County Flood Control property). If however, the southerly levee failed, the ponding capacity (2200 acre-feet) on the property would be eliminated and the 100 year inflow from the Scottsdale area (3570 acre-feet) would be backed up, causing higher flood levels upstream. It is noted that the project would reduce the ponding capacity on the property by 13 percent or 350 acre-feet. If a levee failure occurred, the inflow from tidal action would greatly exceed the total storage capacity of the property with or without the project. The project fill would not noticeably effect the level of increased flooding upstream as the total ponding capacity would be eliminated by the tidal flooding.

2.030 Local Runoff. Intense rainstorms in the upper part of the watershed could cause large flood flows into Scottsdale Pond (457 cfs for a 50-year flood, Novato Planning Department, 1974). This 10-acre pond has an outlet weir at elevation +0 feet msl and would discharge floodwaters into the downstream section of Lynwood Slough without causing inundation of property upstream. Local runoff would flow down Lynwood Slough into the existing retention ponds or if the runoff was of sufficient magnitude, into the low lying areas throughout the Hanna Ranch. It would then be pumped into Novato Creek. Within the approximately 340 acres of low lying land on the Hanna Ranch (including the state owned portion), there is sufficient storage to accumulate all the runoff from the 100-year storm in the local watershed with only a few feet rise in water surface elevation. Should the Lynwood Slough pumps be inoperable for any reason, only the southern part of the project site would be inundated by shallow flooding.

2.031 Flooding from Novato Creek. The major flood problem on the Hanna Ranch is caused by overflow from Novato Creek. The Novato Creek watershed at the U. S. 101 bridge is approximately 25 square miles and rises to elevations of 1900 feet. Whenever there is a period of precipitation followed by an intense rainstorm, flood conditions can result.

2.032 In its natural state, the creek overtops its bank once every ten years in the lower reaches causing shallow overbank flooding. It was not until these flood plain areas were developed and floodflows obstructed by embankments and bridges that significant flood damages started to occur in the last 40 years.

2.033 The project site west of the railroad provides approximately 450 acre-feet of storage, reducing the frequency of flooding around Scottsdale Pond, and reducing flood elevations in the reach of Novato Creek between the northwestern Pacific Railroad bridge and the Redwood Boulevard bridge.

2.034 Alternative #5. Hamilton Air Force Base is in the Novato Creek watershed which encompasses the sub-watersheds of Arroyo-San Jose Creek and Pacheco Creek. Both Pacheco and Arroyo-San Jose Creeks flow into a ponding area at the north-westerly end of the base. The ponding area is thought to have a capacity of about 600 acre-feet when the water level is six feet above mean sea level.

2.035 Much of the runoff from Pacheco Creek enters HAFB at the southwest end of the base and is conveyed through a system of subsurface culverts into the ponding area. Recent development upstream has increased the flooding potential from Pacheco Creek to the potential regional shopping center site. Low lying areas of the study site could be flooded by a 10-year storm from both Pacheco Creek and the Arroyo-San Jose ponding area. The 100-year floodplain is indicated on Plate 5.

2.036 Impacts.

2.037 Alternative #1. If increased urbanization occurs in the Novato Creek watershed increasing surface runoff, the flooding risk to the site will increase.

2.038 Alternative #2R. This alternative would impact the existing on-site drainage system, on-site flooding and flood hazard to surrounding areas by reducing ponding capacity and increasing on-site surface runoff.

2.039 Drainage System. The 70 acre area to the west of the freeway which currently drains into old Lynwood Slough would continue to drain through two culverts under the freeway and discharge into the "Ecological Preserve" at the southern end of the property. The "Ecological Preserve" would also be connected to Cheda Creek by culverts under the southern access road to the shopping center. Weirs would be placed at the connection to allow retention of approximately four feet of water in the marsh.

2.040 Water from Scottsdale Pond would drain into the new Lynwood Channel. The new channel of Lynwood Slough would follow the same alignment but pass through a large 20' x 6' culvert to daylight just to the west of the railroad tracks. Water would then flow through the existing and additional 60" culverts into the enlarged lake on the other side. Placement of fill between the railroad and Highway 101 could cause increased flood depths upstream of the highway if a flood way for water overflowing Novato Creek is not provided through the project. Therefore, a second large 20' x 6' culvert would be constructed to drain Novato Creek floodwaters from the low lying area at the Rowland Boulevard interchange to the west side of the railroad tracks. Additional 60" culverts would be placed through the railroad embankment to discharge directly into the lake.

2.041 Runoff from the site would drain towards the east and be collected in a drainage channel on the east side of the railroad tracks before discharging into the lake.

2.042 The lake itself would act as a retention pond and sump for the existing pump station. It would be excavated to approximately -12 feet msl and water levels would be maintained to approximately -5 feet msl by the pumps. This would require readjustment to the operational controls of the existing pumps. Water would be provided to the lake from the stormwater runoff and seepage of salt water through the Novato Creek levees. Since evaporation from the pond could be in the range of 100-150 acre-feet/year during the summer and fall and since Scottsdale Pond intercepts most of the surface runoff upstream, during this part of the year, water levels in the lake would probably decline and the water would become more brackish. In the winter and spring, the lake would be

full and contain fresh water runoff. Water levels during the winter and spring would be maintained at a relatively constant level by the placement of weirs at the inlet and outlet. The weirs would allow storm inflow and outflow during higher runoff flows in the channel and would hold the lake at a predetermined level after the channel had been drained by the pumps.

2.043 Flooding on Site. The development structures would be constructed on fill at an elevation of +8 to +9 feet msl and would not be subject to inundation from the 100-year tide or flood from Novato Creek except in the circumstances described below. Parking areas would be constructed at elevations of +6 to +7 feet msl and could be subject to shallow flooding by extremely high tides should the Novato Creek levees fail. More significantly, if during a large flood on Novato Creek, the two culverts crossing the site were obstructed by debris, or their flow capacity reduced by high water levels on the Hanna Ranch retention area, large floodflows could occur across the site. These flows would be diverted around the north edge of the buildings to flow over the northern parking area towards the east. The parking lot would slope away from the building pad elevations, which are required to be above the 100-year flood level plus freeboard, and could pass portions of the flood flow in the event that one or both culverts become clogged with debris. It is unlikely that any debris of the size necessary to plug the culvert opening would flow over the highway since the highway overflow depth is estimated at a maximum depth of 1-2 feet.

2.044 Should for any reason the Lynwood Slough pumps be inoperative or should two very large storms occur within a short period before the retention basin can be pumped out, or if a 100-year flood or larger occurs, the basin could completely fill and water levels could rise to approximately 7 feet (msl). This would inundate the proposed parking areas to depth of 1 or 2 feet.

2.045 Effects on Flooding In Adjacent Areas. The project site is located on fill placed directly across the path of most of the floodwater overflowing from Novato Creek. However, the 101 freeway embankment already provides a substantial obstruction to the passage of floodwaters from the Scottsdale Pond area. Water leaves the Scottsdale Pond either through the Lynwood Slough culvert or through the Lynwood-Slough culvert with overtopping of the freeway.

2.046 Provided outflows over the freeway are not impeded, nor outflows from the culvert obstructed, there would be little effect on water levels in Scottsdale Pond. With the proposed drainage system design concept, water flowing over the freeway would pond in the interchange area (elevation +4 feet msl), would collect in the two 20' x 6' culverts passing under the site, and would then discharge into the retention area to the east of the railroad line. Normally this system would not impede the weir flow over the freeway until water levels in the state owned parcel had backed up sufficiently to substantially reduce the outflow capacity of the two culverts. When this occurs, the 10' x 6' Scottsdale Pond outlet culvert capacity would also be reduced.

2.047 Backing up of water in the outlet occurs under existing conditions. With the proposed project, the installation of additional culverts and the raising of ground elevations on the site could increase the obstruction of

weir flow. The 100-year weir flow over Highway 101 is estimated to be 1,200-1,300 feet long and one foot deep according to Corps of Engineer studies. However, the most significant impact on Scottsdale Pond water levels would be due to the placement of fill in what was formerly part of the retention area of the Hanna Ranch.

2.048 The proposed project would reduce the total retention storage between the elevations of -1 and +7 msl feet by approximately 360 acre-feet. Four hundred and sixty acre-feet would be filled on the site, but excavation of the 37-acre lake to a water surface elevation of -5 feet msl would provide an additional 100 acre-feet.

2.049 No flood routing analysis has been done at this stage in the design process to determine the water levels on the Hanna Ranch which would cause increases in flood elevations in the Scottsdale area. However, it appears that the reduction in storage capacity would cause a small increase in frequency of flooding in this area and at the Rowland Boulevard interchange and would also cause a small increase in flood depths during very large floods.

2.050 In the proposed drainage design concept, the existing low point on the south bank levee just upstream of the railroad bridge would be retained to allow for relief of backwater ponding behind the Redwood Boulevard bridge. Reduction in the total storage volume of the Hanna Ranch by 360 acre-feet would reduce this capability by a small degree.

2.051 Reduction of storage volume on the project site and increased local runoff would also reduce the effectiveness of the downstream floodwater storage areas on Novato and Cheda Creeks to lower flood elevations upstream and increase flooding problems near State Highway 37. The above would especially be so if in the future the capacity of the upstream channel is enlarged. Overflow across Highway 37 would have occurred about once every 70 years under existing conditions. Under conditions after completion of the proposed project, storage would be reduced to the point where some water could back up across Highway 101 and the frequency of flooding across Highway 37 would increase to once every 30 years.

2.052 Alternative #3. Detailed plans for this alternative have not been made, so it is assumed that the hydrologic design of the developed area north of Lynwood Slough would be the same as for Alternative #2R. The area south of the slough, would not be filled. This area would continue to collect floodwater from high tides, local runoff and Novato Creek. This alternative would not decrease the flood storage capacity of the site to the same extent as Alternative #2R.

2.053 Alternative #4. Although detailed plans have not been worked out for this alternative, it is assumed that the hydrological impacts will be similar to Alternative #2R.

2.054 Alternative #5. Specific plans have not been developed for this alternative. It is assumed that flood protection would be provided by filling of the low portions of the site to an elevation above the flood plain. Pacheco Creek may be channelized and the underground drainage system may be enlarged.

2.055 Mitigation.

2.056 Alternative #2R. Suggested mitigation.

a. The culverts through the site should be designed to convey at least the 100-year flood overspill from Novato Creek.

b. Inlets to the culverts should be designed with flared wing walls and debris screens to minimize flow obstruction.

c. The parking area on the north side of the project site should be designed to convey 100-year floodflows without damage to adjacent structures.

d. The drainage channel along the east side of the railroad should be designed to convey floodwaters overflowing the property from upstream of the railroad bridge without causing erosion damage to the railroad embankment.

e. Building pads on site should be elevated above the maximum water surface level of the retention pond.

f. In the design of the drainage system, a flood routing analysis should be done to determine actual maximum surface elevations on the Hanna Ranch, increases in water surface elevations in the Scottsdale Pond area during the 100-year flood, and increases in frequency of flooding from smaller floods due to loss of retention volume.

g. If such an analysis shows it to be necessary, additional pumping capacity should be installed at the Lynwood Slough pump station to control water surface elevations to existing levels. To compensate for the loss of 360 acre-feet of storage, pumping capacity of approximately 120 acre-feet/day (61 cfs) should be installed to maintain the 100-year flood ponding at existing levels (assuming a 72-hour flood hydrograph for the 100-year flood).

2.057 An alternative approach to flood protection for the site would be to increase channel capacity of Novato Creek upstream of U.S. Highway 101 and provide a retention basin to prevent overflow into the project site. Such an approach would eliminate the need for large culverts through the site, but would still require building pad elevations to a minimum of 8 feet to provide protection against extremely high tides. Under this alternative, flood protection would be provided for the whole area south of Novato Creek. This alternative is the basis of the state freeway design. Also, this alternative was studied by the Corps of Engineers and determine to be economically unjustified.

2.058 Alternative #3, #4. Same as Alternative #2R.

2.059 WATER QUALITY

2.060 Present Conditions.

2.061 Alternatives #1-4. Water quality on the project site is variable and is dependent on the intensity and duration of rain, and the quantity and nature of stormwater runoff. Although the Old Lynwood Slough now holds only local runoff, the water is of sufficient quality to support freshwater habitat for wildlife. The realigned Lynwood Slough accepts most local drainage from the site. It is full during the winter, and holds isolated stagnant ponded water during periods of dry weather. The water quality in the slough is generally poor and low in disolved oxygen (DO) due to limited mixing. This water becomes degraded by the addition of salt from leaching of the inherently salty soils, by concentration from evaporation, and by a rise in temperature (which reduces oxygen levels). Water quality in the holding ponds is similar to that of Lynwood Slough, and seems to be of sufficient quality to support an invetebrate population and to provide waterfowl habitat (Harvey, 1978).

2.062 During storms in the winter and early spring, early runoff from the watershed is degraded by urban contaminants washed from paved surfaces. In time, these contaminants become diluted, thus improving the quality of water in later runoff, and improving the quality of wildlife habitat. Runoff from the site also adversely effects water quality by increasing turbidity.

2.063 No information exists on the water quality of Novato Creek. Novato Creek has not been subjected to sewage flows since the installment of the Novato Sanitary District's outfall in San Pablo Bay, but is subjected to contaminants found in stormwater runoffs. Novato Creek is subjected to tidal action which helps to maintain good water quality through mixing and dilution.

2.064 Potential beneficial uses of Novato Creek include contact and non-contact water recreation, warm and cold water habitat, and fish migration and spawning. Novato Creek currently provides a water supply and vegetative habitat for the maintenance of wildlife.

2.065 Although there are areas of water stagnation on site, the Marin Sonoma Mosquito Abatement District does not spray or experience any problems with mosquito control on the site (E.I.P., 1979).

2.066 Alternative #5. The Pacheco Creek watershed is the only area of Hamilton Air Force Base drainage that is mixed with off-base drainage. As the watershed is being developed, it is assumed that the runoff contains contaminants from street runoff, animal wastes, oil, fertilizer and litter. There are no significant sources of contaminants on the project site.

2.067 Impacts

2.068 Alternative #1. No change.

2.069 Alternative #2R. Construction of the proposed project would effect on-site water quality. The culverting of Lynwood Slough is not expected to change the quality of stormwater runoff that is discharged through it. The higher runoff rates generated by the increase in impervious surfaces on site (parking lots and buildings) would carry impurities originating from litter, automobiles, fertilizers, pesticides, and animal wastes. Pollutant concentrations in runoff depends upon the type of pollution that collect on paved surfaces, frequency of street-cleaning, and magnitude and timing of storms. Surface runoff from the site would ultimately be discharged to the proposed lake created by the excavation of fill for the proposed project. Runoff would drain through filtration basins filled with hadite, a form of heat expanded clay pellets. The basins would trap and retain oil, grease and nutrients that may be present in winter rain runoff.

2.070 Storm runoff collected in the proposed lake would take limited advantage of the natural cleansing capacity of proposed wetland vegetation. Pollutant waste can be decomposed and dispersed provided that (1) the system is not also stressed by poisons (insecticides, acids, etc.) and that (2) the rate of input is controlled at low to moderate levels and not subjected to sudden "shocks". It must be recognized that impounded waters do not have nearly the natural capacity for waste treatment as those waters subject to tidal action.

2.071 Water would be provided to the "Ecological Preserve" at the southern end of the property by runoff from the hills on the west side of the freeway and by Cheda Creek, a fresh water stream with a watershed of 350 acres of homes, grasslands and woodlands. The connections to Cheda Creek would be designed to provide the ability to draw down water stored in the wetland if desired for mosquito control. The gates to the wetland would permit storage of approximately 4 feet of water. At the end of the dry season, 1-2 feet of water would remain in the channels and the islands would be almost completely exposed. This plan would improve water quality in the slough over existing conditions by increasing the volume of water in the marsh, increasing circulation, and the provision of filtration basins. Some litter and debris may enter the marsh from the developed shopping center. This impact will be minimized by the proposed vegetation buffer.

2.072 Alternative #3. The impacts of this alternative would be similar to the impacts of Alternative #2R discussed above except that the reduced size of the project would result in a proportionate decrease in surface runoff and a corresponding decrease in contaminants entering the two existing ponds on the east side of the railroad. A lake with wetland vegetation will not be created as part of this alternative, so wetland vegetation will not be available to improve water quality.

2.073 Alternative #4. Same as Alternative #2R except there may be some additional pollutants entering the water system due to the presence of light industry on the site, and there would be no marsh created on site.

2.074 Alternative #5. This alternative will increase the amount of impervious surface on the site thus increasing runoff. Litter, waste, oil and fertilizer in the parking areas may be washed into Pacheco Creek. The severity of the impact will depend upon storm frequency and magnitude, and the frequency of street cleaning.

2.075 Mitigation.

2.076 Alternative #2R. Proposed Mitigation. The lake and quality of the discharge to Novato Creek would need to meet requirements of the Regional Water Quality Board. General requirements relate to conditions for circulation and the control of excess algae growth.

2.077 The Department of Fish and Game has already acquired a 66 year lease for the 278-acre area owned by the State Lands Commission. If constructed, the proposed lake will be managed in conjunction with the present management plan of the San Pablo Bay State Wildlife Area.

2.078 Suggested Mitigation.

a. Control of littering and dogs.

b. Provision of frequent street sweeping (conducted prior to and during the rainy season).

c. Frequent cleaning of catch basins.

d. Regulation of construction schedules.

e. Stabilize exposed areas of lake through seeding or planting of vegetation to minimize turbidity.

f. Control of erosion at construction site.

g. Reseeding or application of vegetation to disturbed areas.

h. Reduce volume of runoff by maintaining pervious open space areas and construction of detention and storage basins. If water were stored on the roofs of structures it could be used for irrigation without the need for mechanical pumping. If the roof runoff is not stored, it should be discharged directly to the drainage system, not merely allowed to run onto the parking lots. In addition, surface to subsurface storage basins could be constructed to catch the first flush of runoff, which contains most of the pollutants. This water could either be used to irrigate planted areas or discharged after sufficient time has elapsed to allow pollutants to settle out.

i. Constuct detention and storage basins to catch the first flush of runoff which contains most of the pollutants. This water could be discharged after sufficient time has elapsed to allow pollutants to settle out.

2.079 Alternative #3. Same as Alternative #2R.

2.080 Alternative #4. Same as Alternative #2R. The presence of industry may require additional safeguards against accidental spills of toxic substances and/or limitations upon the kind of establishments which could locate on the site.

2.081 Alternative #5. Same as mitigation suggested for Alternative #2R.

2.082 VEGETATION AND WILDLIFE

2.083 Present Conditions.

2.084 Alternatives #1-4. Historically, most of Study Areas #1-4 were part of the San Francisco Bay estuarine complex. The flatland that abutted upon the low hills around San Pablo Bay was covered with marsh vegetation and interspersed by many meandering sloughs. Lynwood Slough was one of the these many sloughs that drained the extensive marshlands. At one time over 300 square miles of such habitat existed around the Bay. Now less than 60 square miles of tidal marshland remain.

2.085 The high productivity of the former marshland that dominated the site undoubtedly supported a rich wildlife assemblage. Little remains of these productive wetlands today. Only the remnants of Lynwood Slough have enough water to sustain life forms and numbers indicative of former wildlife uses.

2.086 All of the study area has been diked off from tidal action and much of the northern portion has had fill deposited on it. The diking has prevented tidal inundation so that water accumulates only after winter rains. At the higher elevations plants adapted to dry conditions survive, while freshwater marsh vegetation grows in the old slough bottom. The deposition of fill has had a major impact by destroying the original vegetation and raising the surface above current ground water levels.

2.087 The U.S. Fish and Wildlife Service has contracted to have a report prepared to describe and quantify some of the ecological values of the wetland area. The entire report is included in this ES as Appendix E. The following is the summary from that report.

2.088 "The 9-acre Lynwood Slough is a wetland with standing water during winter, spring and summer. Cattail and tule are the dominant emergent vegetation in the freshwater slough. At least 49 species of birds, 13 species of mammals, 2 species of reptiles, and 2 species of amphibians were found in the slough or along its borders between November 1978 and May 1979. Standing water was the primary factor attracting six species of aquatic birds to the area, and aquatic vegetation the factor attracting one other species. Ten species of birds were associated with trees bordering the slough. Twenty-nine species of birds occurred on two oak knolls that lay adjacent to the slough. The air space over the slough was utilized by four species of aerial foragers. Aquatic bird use of the area would probably have been greater if there had been a significant amount of standing water year round."

2.089 Vegetation. The project site was surveyed by Harvey & Stanley Associates, Ecological Consultants in Fall 1978. The study divided the project site into five areas referred to as the Fill Area, Lynwood Slough Area, Lake Area, Field Area and Oak Area. The locations of these areas are indicated on Plate 6. A list of the species observed is included in Appendix C. The results of the survey are summarized below.

a. The Fill Area consists almost entirely of annual weed species of non-native plants. Common members of this ruderal community are Australian saltbrush, wild oats, horseweed and rabbit's foot grass. In general, the cover is relatively sparse although there are apparent low areas where some dense growth occurs.

b. The Lynwood Slough Area was the least disturbed of the areas surveyed. The old slough course and the new channel provide a wetland habitat for various native plants. The native species include coyote brush, cattails, saltgrass, arroyo willow, brass buttons and alkali bulrush. The native species are joined by non-natives such as wild radish, yellow star thistle and perennial rye grass. A map of slough vegetation is included in Appendix E.

c. The Lake Area is also a disturbed area as some of the substrate has been removed and the area is diked off from tidal action. It is very sparsely covered with weedy species of plants, many of which are the same as those on the Fill Area. In addition to the ones listed above, there are individuals of hayfield tarweed, pampas grass, telegraph weed, bristly oxtongue and wild radish.

d. The Field Area appears to have been partially disturbed by fill and hay cultivation. The latter has resulted in the introduction of many weedy species. It is a relatively well-covered site by various ruderal plants, such as those listed for the previously mentioned areas. In addition to the thistles and wild radish, etc., there are specimens of Italian ryegrass and perennial ryegrass in the Field Area.

e. The Oak Area consists of the remnants of the foothills that project into the former marshland. The vegetation cover is an oak savannah. Specifically, the oaks are live oak, blue oak, black oak and valley oak. The ground cover consists primarily of introduced weedy species. Common representatives are slender wild oats, Canada thistle, wild radish and milk thistle.

2.090 Wildlife. Each of the Areas described above were surveyed for wildlife habitat by Harvey & Stanley Associates. A procedure adopted from the U.S. Fish & Wildlife Service Habitat Evaluation was used to rank each of the areas for wildlife use. A listing of the animal species observed is presented in Appendix C.

a. The Fill Area overall would rank low for wildlife use. The sparseness of vegetation makes it a marginal habitat because of the relatively little food available and the lack of cover.

b. The Lynwood Slough Area was the richest area from a vegetation standpoint and rated high in wildlife use. The presence of marsh vegetation, the proximity of diverse habitats, and the scarcity of freshwater marshes around the Bay Area contribute to the high value of this area for migratory and resident birds.

c. The Lake Area was low in wildlife use. The vegetative cover is less dense here than in the Fill Area making it less valuable for wildlife.

d. The Field Area was evaluated as of moderate wildife use. The vegetative cover is more dense than the area discussed above and it is adjacent to a water source, Lynwood Slough, where dense cover exists.

e. The Oak Area is stratified which enhances wildlife use. The tree canopy and ground cover support a variety of wildlife species including jays and finches. This area was evaluated high for wildlife use.

f. The Pond Area, next to the Lake Area, was also evaluated because it would be affected if the lake were developed. The presence of year-round water supports various duck species and shorebirds. A census of this area performed by Gary Page and Lynne E. Stenzel of the Point Reys Bird Observatory recoreded 45 species of birds at the ponds, including twenty-four species of aquatic birds. Most of the species were over-wintering at the site and were using the area for resting and feeding. Seven species of mammals used the pond area during the course of the census.

2.091 Threatened and Endangered Species. It is highly probable that the original marshland on the site supported the now endangered species of salt marsh harvest mouse and California clapper rail. As the clapper rail depends upon tidal marsh for food, it is not likely that any now utilize the site. None have been observed on the site. It is unlikely that the salt marsh harvest mouse is present on the project site. Fifty trapping stations were set up on the site on four nights to capture the mouse. None were trapped. The U. S. Fish and Wildlife Service has been consulted on this issue, and they have reported that there are no listed threatened or endanger species at the project site. However, they reported five plant species proposed for addition to the threatened and endangered species list that may be in the project vicinity. The comprehensive study of the project site by Harvey and Stanley Associates did not find any of the five proposed species on the project site. Because of the disturbed nature of the area their presencee is highly unlikely. No impact is anticipated to any listed or proposed threatened or endangered species. This document will serve as the Biological Assessment required by Section 7 of the Endangered Species Act of 1973, as amended.

2.092 Alternative #5.

2.093 Vegetation. The Hamilton Air Force base has been intensively used for the last century. This activity has resulted in a relative scarcity of natural plant and animal habitat. Most of Study Area 5 is annual grassland. A 10-acre portion of the site along Pacheco Creek supports riparian vegetation consisting of willows, acacia, blackberries, and associated plants. This riparian area has been reduced by the channelization of the creek. The southwestern portion of the site contains buildings and paved surfaces with little vegetation.

2.094 Wildlife. The developed area has the least value to wildlife. The grassland is of moderate value to rodents, small mammals, raptors and terrestrial birds. The most valuable area for wildlife and the most sensitive to disruption is along Pacheco Creek. Detailed wildlife studies have not been prepared for this site.

2.095 Threatened and Endangered Species. No rare and endangered species have been recorded in the Study Area, and the probability for their occurrence is low, due to long-term human use of most of the Study Area.

2.096 Impacts.

2.097 Alternative #1. No change.

2.098 Alternative #2R. Due to the relatively sparse vegetation cover and lack of water, the development of the filled portion of the site (north of the new Lynwood Slough) would pose the least significant impacts to fish and wildlife. Development of the area south of Lynwood Slough will have a greater impact, as a portion of the old Slough would be destroyed. Project landscaping may provide some limited habitat for terrestrial animals.

2.099 Mitigation Proposed. Under the revised proposal submitted by the project applicant, 39.4 acres of the project site south of Lynwood Channel is to be filled for the proposed shopping center, including 4.07 acres of existing slough. The southern 4.9 acres of the slough would be preserved and 6.8 adjacent acres would be excavated to create new marsh. The existing levee bordering the slough would be breeched in four locations, lowered and broadened to create low lying islands surrounded by water channels.

2.100 Water for the marsh area would be supplied by runoff from the hills to the west of Highway 101 through two culverts under the highway and by the re-establishment of a connection to Cheda Creek at the southern end of the property. Weirs would be placed at the two culverts to Cheda Creek so that 4 feet of water could be retained in the marsh. Additional pipes would also be installed at a lower elevation which could be opened to drain the marsh if desired for mosquito control. It is estimated that if the water level in the marsh is four feet deep at the beginning of the dry season the level would drop to 1-2 feet in the channels at the end of the summer due to evapotranspiration.

2.101 Local drainage from the shopping center parking lots and from Highway 101 would drain through filtration basins filled with hadite, a form of heat-expanded clay pellets to retain oil, grease and nutrients that may be present in winter rain runoff. No planting of vegetation aside from willows and/or cottonwoods on some of the islands and screening around the perimeter is proposed. It is expected that the newly created marsh would be revegetated naturally by seed and spores which are transported by winds, water and birds.

2.102 A lake would be created at the borrow site on the State-owned property to the east of the railroad tracks. The lake would be fed by runoff from Scottsdale pond through a culvert underlying the project (replacing Lynwood Slough) and from runoff from the west side of the railroad tracks. The lake would be excavated according to specifications of the California Department of Fish and Game with mutually acceptable modifications required by other agencies such as the Marin/Sonoma Mosquito Abatement District.

2.103 The lake plan as currently proposed would provide floodwater storage and wildlife habitat. It is intended to include a 37-acre irregularly shaped lake with a 2-acre island, 8000 feet of shoreline and a depth of 7 feet (-12 ft. to -5 ft. mean sea level). Water will be fed into the lake through a channel with water control devices (weirs) near the railroad culverts and near the flood control pumps. The controls would allow storm inflow and outflow during higher runoff flows in the channel, and would hold the lake surface at -5 feet (MSL) after the channel had been drained by the pumps into Novato Creek. In this manner, the fresh water lake could start the summer season with 7 feet of water before it was lowered through evaporation.

2.104 The developer has also agreed to install water control structures in the southern portion of the State-owned property as requested by the Department of Fish and Game. The applicant is currently conducting a hydraulic study to determine the feasibility of returning this area to tidal action and creating tidal marsh habitat. This plan would include excavation of a feeder ditch and inlet and outlet control structures to Novato Creek and a berm separating the tidal portion of the site from the freshwater lake system. A ditch and fencing would be provided to prevent access to the State-owned parcel. Under this proposal the Department of Fish and Game would be responsible for creating channels and ponds in the area to be used for tidal marsh. A rationale and map of this plan is included as document B-6, Appendix B.

2.105 This alternative would also increase the amount of water in the wetland, improve water quality and allow water to remain in the marsh for a greater portion of the year than under existing conditions. All of the above would improve the wildlife value of the marsh. However, it is recognized that the "Ecological Preserve" created by this plan although screened by vegetation would be adjacent to a developed site and so would not be used extensively by wildlife easily frightened by human activity. The preserve may also not support as great a species diversity as presently supported by the slough, oak knoll and oat field on the site since most of the upland habitat will be destroyed by the proposed fill or converted to wetland. However, the improved quality of the wetland would attract more waterfowl and shorebirds to the site. The "Ecological Preserve" would be dedicated to the city of Novato to be preserved from future developement.

2.106 At the request of the developer, the US Fish and Wildlife Service conducted a Habitat Evaluation of the project site under existing conditions and with the project and mitigation. A copy of the Habitat Evaluation is included in Appendix B. That study found that the existing habitat value of the entire project site west of the railroad is 1779 habitat units while the post project value of the site would be 994 habitat units; a loss of 785 habitat units. However if one were to consider only the wetland/slough segments of the project, the existing value is 562 habitat units and after project completion it would provide 994 habitat units, a gain of 432 habitat units.

2.107 The improvements made east of the railroad on the State-owned parcel were not considered in the Habitat Evaluation study. Due to the increased size of the lake, the planting of upland vegetation, the natural establishment of wetland vegetation around its bordrers, the provision of an island and the retention of water year-round, it would attract wildlife, especially waterfowl.

2.108 Agency Coordination. Among the agencies coordinating with the Corps on permit actions, those with particular expertise and responsibility for fish and wildlife are the Environmental Protection Agency (EPA), U. S. Fish and Wildlife Service (FWS), National Oceanic and Atmospheric Administration (NOAA), and the California Department of Fish and Game (DFG). The Department of Fish and Game would not object to the permit action because it is the opinion of the State Resources Agency that the title agreement described in paragraph 2.003 satisfies the State's interest in the property (Document B-4, Appendix B). The Fish and Wildlife Service has indicated that they will object to the issuance of the permit because a regional shopping center is not dependent upon location in a wetland, and Service policy and guidelines mandate opposition to nonwater-dependent fills in productive wetlands. For this reason the U.S. Fish and Wildlife Service will not consider any work on the State-owned land east of the railroad line as adequate mitigation for the proposed project (Document B-5 Appendix B). EPA has determined that implementation of Alternative #2R will provide an overall gain in environmental values, and that other site and construction alternatives are not available, therefore EPA does not object to permitting the proposed project. EPA requests that a biological assessment be carried out by the applicant one year after project completion to determine if a reasonable level of biological productivity has been achieved in the "Ecological Preserve". If not, then the appplicant would be responsible for implementing measures to achieve that goal deemed necessary by the coordinating agencies. (Document F-2, Appendix F). NOAA has determined that they will accept mitigation on the State-owned parcel for the proposed filling of the slough. They recommend that channels be created on the State-owned parcel to allow the maximum extent of tidal inundation in addition to the work proposed as mitigation under Alternative #2R. The additional cost would be assumed by the project developer. (Document F-5, Appendix F.)

2.109 Alternative #3. This alternative would destroy the sparse vegetation of the area north of Lynwood Slough which has already been disturbed. The loss of this habitat is not considered critical. The area south of Lynwood Slough, which is considered more important for wildlife, would remain in its present condition. Human intrusion into the area may increase. The ponds east of the railroad would not be impacted directly, however, the vegetation and wildlife may be impacted by any degradation of water quality produced by the proposed shopping center.

2.110 Alternative #4. Same as Alternative #2R.

2.111 Alternative #5. The proposed project will destroy the existing vegetation and wildlife habitat. Project landscaping may provide limited habitat after project completion. No impact to any Threatened or Endangered Species is anticipated.

2.112 Mitigation Suggested. Retention of the existing riparian habitat along Pacheco Creek.

2.113 TRAFFIC/CIRCULATION

2.114 Present Conditions.

2.115 Alternatives #1-4. Access to Study Areas 1-4 is provided by U.S. Route 101, State Route 37 and several local streets. Plate 9 shows existing evening peak hour and average daily directional traffic volumes for a typical Friday at all important points in the roadway network serving the study areas.

2.116 U.S. 101, which is adjacent to the western boundary of the proposed site, is the major route connecting the shopping center with the populated areas of Marin County and San Francisco to the south; and the cities of Petaluma and Santa Rosa in Sonoma County to the north. U.S. 101 is built to freeway standards and has three lanes in each direction in the general vicinity of the study areas (the freeway becomes four lanes in each direction at a point south of the City of San Rafael and two lanes in each direction north of Novato). Current commute patterns result in congestion on southbound U.S. 101 from southern Novato to San Rafael (including the portion of the highway near the study areas) during the morning peak travel period. Traffic volumes on U.S. 101 decline after the morning, and there are usually no significant traffic congestion problems in the proposed project vicinity during the evening peak period.

2.117 Situated to the south of the project site is State Route 37. State Route 37 is a four lane expressway (two-lanes in each direction) which connects the site with the cities of Napa and Vallejo, and other portions of Napa, Sonoma, and Solano Counties. The western terminus of State Route 37 is U.S. 101. Traffic volumes along State Route 37 are relatively light, and no peak period traffic congestion occurs in the vicinity of the study areas.

2.118 Access from the regional highway network to the site is provided by either the Rowland Boulevard interchange on U.S. 101 or the Marsh Road-Hanna Ranch Road interchange on State Route 37. The Rowland Boulevard interchange is situated at the northwestern corner of the site and is currently constructed in a "diamond" configuration. This existing ramp configuration operates well under the existing traffic conditions. To the south of the site, State Route 37 has an interchange with Marsh Road and Hanna Ranch Road. These two roads provide access to the existing properties situated directly south of study areas. Limited traffic travels along these two access roads. A single track of the Northwestern Pacific Railroad crosses Hanna Ranch Road at grade west of Marsh Road.

2.119 Table 1 indicates the present levels of service on U.S. 101 and State Route 37 at peak hour traffic on a Friday afternoon in the vicinity of Study Areas 1-4.

TABLE 1

FRIDAY PM PEAK HOUR LEVEL OF FREEWAY SERVICE, 1977

Road Segment	Direction	Level of Service*
U.S. 101:		
South of State Route 37	Northbound	D
	Southbound	B
Between SR 37 & Rowland Boulevard	Northbound	C-D
	Southbound	A-B
Between Rowland Boulevard & DeLong Avenue	Northbound	C
	Southbound	A
State Route 37:		
East of U.S. 101	Westbound	A
	Eastbound	A

*Level of freeway service interpretation (based on the National Academy of Sciences, Highway Capacity Manual):

A: Excellent operation; unrestricted flow, speeds greater than 60 mph.
B: Very good operation; speeds greater than 55 mph.
C: Good operation; speeds greater than 50 mph.
D: Fair operation; speeds greater than 40 mph.
E: Poor operation; unstable flow, speeds about 30 mph.

Source: EIP, 1979.

2.120 The principal streets providing access to the site from the City of Novato and adjacent areas are: South Novato Boulevard; Redwood Boulevard; and Rowland Boulevard. South Novato Boulevard is a major north-south arterial through the City of Novato. Tentative plans have been proposed to widen South Novato Boulevard between Rowland Boulevard and Diablo Avenue, however, the program for this improvement has not been formalized.

2.121 The Redwood Boulevard is also a north-south roadway. Redwood Boulevard does not currently connect Rowland Boulevard with South Novato Boulevard to the south. As part of a residential development, plans have been proposed to extend Redwood Boulevard and make it a continuous route between these two roads.

2.122 Rowland Boulevard functions as an east-west collector route between South Novato and Redwood Boulevards, and U.S. 101. Between South Novato and Redwood Boulevards, Rowland Boulevard has two traffic lanes in each direction plus left-turn pockets in a median. This basic land configuration extends across the freeway. Rowland Boulevard does not currently extend east beyond the northbound freeway ramps. Traffic volumes along Rowland Boulevard are moderate.

2.123 The following table (Table 2) indicates the present level of service at the principal intersection along these local streets for peak hour traffic on a Friday afternoon.

TABLE 2

FRIDAY PM PEAK HOUR LEVEL OF SERVICE FOR LOCAL STREETS, 1977

Intersection	Type of Control	Level of Service 1/
South Novato Blvd. & Diablo Ave.	Signal	B
South Novato Blvd. & Rowland Blvd.	Signal	A-B
South Novato Blvd. & Sunset Pkwy.	4-Way Stop	B
South Novato Blvd. & Redwood	1-Way Stop	A
Redwood Blvd. & Diablo/DeLong Ave.	Signal	A-B
Redwood Blvd. & Rowland Blvd.	Signal	A
On & Off-Ramps at Rowland	Northbound on-ramp has a stop, otherwise no controls present	A

1/ Level of service interpretation (based on the National Academy of Sciences, Highway Capacity Manual):

A: Excellent operations; no vehicle waits longer than one red indication.

B: Very good operation; an occasional queue on an intersection approach may develop.

C: Good operation; occasionally, vehicles may have to wait through more than a red signal indication.

D: Fair operation; vehicles may be required to wait through more than one red signal indication during peak periods.

E: Poor operation; long queues at controlled intersections, may be delayed for several signal cycles.

Source: EIP, 1979.

2.124 Transit. The Golden Gate Bridge Highway and Transportation District and the Marin County Transit District have the responsibility for the provision of public transit along South Novato Boulevard and U.S. 101. However, none of the existing bus routes provides direct service to the project site. Route 1 is the only designated "local" bus route operating within Novato. Route 1 operates on a 30 minute headway throughout most of the day on weekdays, and 60 minute headways on Saturdays. In general, there is limited transit service within the City of Novato, and no local service is in the immediate vicinity of the study areas.

2.125 Bicycle and Pedestrian Movement. Existing pedestrian movements in the general area of Rowland, Redwood, and South Novato Boulevards are limited. The only pedestrian route to the Hanna Ranch site would require walking across the overpass, which involves crossing the freeway on and off-ramps at several points.

2.126 Redwood Boulevard between Diablo and Rowland Boulevards, Rowland Boulevard between Redwood Boulevard and Cambridge Street, and South Novato Boulevard between center Road and Rowland Boulevard are designated as bicycle routes. Limited data is available on bicycle movements along the streets in the vicinity of Hanna Ranch, however, this information indicates only limited use of the bike routes during the weekday evening peak period. Bicycle travel, however, is more prevalent during the morning and mid-afternoon periods, and during the spring and summer months.

2.127 Alternative #5. Access to the HAFB surplus properties is provided by a network of highways and local streets. Highway 101, which is adjacent to the western boundary of the site, is the major route connecting HAFB with the principal populated areas of Marin County and San Francisco to the south, and Novato and Sonoma Counties to the north. In the vicinity of Hamilton, traffic volumes on Highway 101 are congested southbound in the morning but typically have no significant traffic congestion during the evening peak period.

2.128 Access from the regional highway network to Hamilton is provided by either the Pacheco (Nave Drive) interchange to the south or the Ignacio interchange at the north end of HAFB. The Pacheco interchange is currently constructed in a modified "cloverleaf" configuration, designed to favor traffic exiting the freeway from the south. This configuration operates well under existing traffic conditions, with a strong traffic bias to and from the south. The Ignacio interchange is currently being upgraded to improve traffic movements and capacity. This interchange is constructed in a modified "diamond" configuration, with a single cloverleaf in the southwest sector favoring movements exiting from the north and headed toward HAFB.

2.129 The principal streets providing access to HAFB are two frontage roads paralleling Highway 101. Nave Drive, a two-lane arterial on the east side of the freeway, runs from the Pacheco interchange at the south to the Ignacio interchange on the north. Nave Drive is the only direct access road to HAFB with two entrances to the base and one leading to the residential area south of the base.

2.130 Alameda del Prado is a two-lane frontage road along the west side of Highway 101, running from just south of the Pacheco interchage at the south to Ignacio Boulevard at the north. The only current connections from Alameda del Prado to the surplus base property are overcrossings at the two interchanges.

2.131 The following table (Table 3) shows the existing (1978) service levels at key intersections/highway segments for afternoon peak hours in the vicinity of Study Area 5.

TABLE 3

SERVICE LEVELS

Intersection/Segment	1978
Ignacio Blvd & Enfrente Road	A
Bel Marin Keys & Nave Drive (existing)	A
Alameda Del Prado & U.S. 101 SB-on/off ramps	A
Nave Drive & North Entrance to HAFB	A
U.S. 101 SB south of Nave Drive	B
U.S. 101 NB south of Nave Drive	D
U.S. 101 SB north of Ignacio Blvd.	B
U.S. 101 NB north of Ignacio Blvd.	D

Source: A.D. Little, 1979.

2.132 Transit. The Golden Gate Bridge, Highway and Transportation District and the Marin County Transit District have the responsibility for the provision of public transit service in Marin County. Several bus lines pass by or near the Hamilton site. Bus route 50 makes local stops between Ignacio Boulevard and Bolling Road on Nave Drive seven days a week. Bus route 70 (seven day service) and commuter bus route 52, (Monday through Friday service only) stop at the Ignacio and Alameda del Prado bus pads on Highway 101. Bus route 1 makes local stops along Ignacio Boulevard and Alameda del Prado on a Monday through Saturday service basis.

2.133 Bicycle and Pedestrian Movement. Ignacio Boulevard, from Sunset Parkway to Alameda del Prado, and Alameda del Prado are designated as recreational bicycle routes. A regional bike path parallel to Highway 101 connects Novato to San Rafael, starting at the Pacheco interchange and extending southward to Marinwood. Designated bicycle lanes exist on Ignacio Boulevard, but not on Alameda del Prado.

2.134 Existing pedestrian movements in the general area of Nave Drive are limited. Sidewalks are provided on one side of Nave Drive. Pedestrians must use unpaved shoulders in much of the area.

2.135 Impacts.

2.136 Alternative #1. Traffic on both local city streets and on Highways will increase in the future even without the addition of a shopping center. The change in service levels caused by this increase is indicated by Table 5, (page 44).

2.137 Alternative #2R. Automobile traffic impacts were identified by analyzing both the quality of traffic flow and how it changes as a result of developing the proposed shopping center, and by evaluating the general operational characteristics of the proposed center's site access and circulation plan. The circulation plan is shown on Plate 3.

2.138 The following improvements are proposed for the local street system. The developer will assume all costs for the improvements.

- The extension of Rowland Boulevard south and east of its current terminus to form the eastern boundary of the shopping center and to connect to Hanna Ranch Road.

- Construction of a standard partial cloverleaf interchange with loop on-ramps in the northwest and southeast quadrants (reference Plate 3).

- Widening and resurfacing of Hanna Ranch Road and Marsh Road, as necessary.

- Traffic signal installation on Rowland Boulevard at several shopping center driveways and at the two freeway off ramps.

-Minor operational improvements such as retiming some to the existing signals and striping a right-turn lane within the existing pavement on westbound Rowland Boulevard at Redwood Boulevard.

2.139 The analysis of the quality of traffic flow was conducted for the year 1982. Table 4 summarizes the traffic generation estimates used in analyzing the shopping center traffic impacts.

TABLE 4

SHOPPING CENTER TRAFFIC GENERATION 1/

Traffic Situation		Evening Peak Hour Trip Rate 2/	Evening Peak Hour Total 3/	24 Hour Total Trip Rate 2/	24 Hour Total Total 3/
Typical Friday:	In	1.52	1,240	17.5	14,242
	Out	1.58	1,290	17.5	14,242
	Total	3.1	2,530	35	28,484

1/ Corresponds to fully operational and matured shopping center. This maximum level of trip generation was used for the impact analysis.

2/ Trip Rate is expressed as the number of trips per 1000 square feet of gross leasable floor area.

3/ Total trips are based on 813,850 square feet of gross leasable floor area.

2.140 The directional distribution of shopping center trips is as follows:

60%	South of Rowland Blvd.
21%	North of Rowland Blvd.
13%	West of U.S. 101
6%	East of U.S. 101 on S.R. 37
100%	Total

2.141 The projected traffic volumes (1982) for the typical Friday situation in the vicinity of the proposed shopping center are indicated on Plate 13. The projected traffic volumes shown in Plate 13 demonstrate what the potential evening peak period demand for travel would be in the event that capacity was not constrained. Also, the following two improvements were incorporated into the traffic analysis: (1) the applicant would assume responsibility for adding an auxiliary lane to northbound U.S. 101 between Ignacio Boulevard and Route 37, and (2) the widening of U.S. 101 between Ignacio Boulevard and Route 37 as recommended in the Hamilton Air Force Base DEIS. The incorporation of these two items into the traffic analysis represents a "worst case" traffic condition. In the event that these improvements are not implemented the peak period traffic is expected to spread. Marginal trips would be deferred, the need for traffic management and/or expanded corridor transit service would be increased and delay to mortorists on northbound U.S. 101 would increase. This in turn would have the effect of marginally improving the level of service values shown in Tables 5 and 6.

2.142 These traffic volumes are used to project the "Level of Service" for local intersections. The six levels of service (National Academy of Sciences, 1965) used in characterizing how well, or how poorly, a highway segment or local street intersection is functioning are described as follows:

- Level of Service A - excellent operating conditions: no delays experienced at signalized intersections; free flow on highways

- Level of Service B - very good operation: generally no delays at signalized intersections; stable flow on highways

- Level of Service C - good operation: occasional short delays at signalized intersections; stable flow on highways

- Level of Service D - fair operation: short delays at signalized intersections more common; approaching unstable flow, but still maintaining tolerable speeds on highways

- Level of Service E - poor operation: some longstanding queues at signalized intersections; unstable flow on highways - low speeds and momentary stoppages

- Level of Service F - forced flow: jammed conditions with long standing queues at signalized intersections; reduced speed and long stoppages occur on highways

2.143 For planning purposes, Level of Service "D" is generally considered to be the upper level of congestion which is tolerable in an urban area, and is used as a design standard and basis for developing roadway improvements by the Marin County Department of Public Works. Level of Service D will subsequently be used as a transportation service standard in evaluating the traffic impacts of the proposed shopping center.

2.144 The following table summarizes the results of the shopping center impact analysis for the major local city street intersections in the study area for a Friday afternoon.

TABLE 5

SHOPPING CENTER TRAFFIC IMPACT ON LOCAL CITY STREET INTERSECTIONS

Intersection	Level of Service		
	1978	1982 Traffic Situation	
		Alternative #1 1/	Alternative #2R 2/
South Novato Blvd. & Diablo Ave.	B	B	B
South Novato Blvd. & Rowland Blvd.	A-B	B	B
South Novato Blvd. & Sunset Pkwy.	B	B	B
South Novato Blvd. & Redwood Blvd.	A	A	A
Redwood Blvd. & Diablo/DeLong Ave.	A-B	B	B
Redwood Blvd. & Rowland Blvd.	A	A-B	B

1/ Base = 1978 traffic projected to 1982.
2/ Typical Friday = 1982 base traffic plus a typical Friday evening peak shopping center traffic

Source: EIP, 1979.

2.145 In general, the shopping center should not have a significant impact on the quality of traffic flow at the major local street intersections in the study area. Further, in no case does the level of service exceed level "C" (good operation), therefore indicating that the existing street system can adequately accommodate the increased traffic generated by the shopping center.

2.146 The following table summarizes the results of the impact analysis for the signalized freeway ramp/street junctions and street intersections adjacent to the proposed shopping center site. (Refer to Plate 9 for intersection locations.)

TABLE 6

SHOPPING CENTER TRAFFIC ON ADJACENT INTERSECTIONS

Signalized Location	Level of Service 1978	Level of Service 1982 Alternative #1 1/	Level of Service 1982 Alternative #2R 3/
I Freeway Ramp Junctions			
N/B 101 Off-Ramp and New City St. 1/	-	-	A
N/B 101 On-Ramp & Rowland Blvd.	A	B	C
S/B 101 Off-Ramp & Rowland Blvd.	A	A	B
S/B 101 On-Ramp & Rowland Blvd.	-	-	C(B) 2/
II Street Intersections 2/			
Rowland Blvd. & New City St.	-	-	A
First Entrance to Center 4/	-	-	A
Second Entrance to Center 4/	-	-	A

1/ As per site plan; to be constructed as part of shopping center development.
2/ With a double left turn on Southbound off-ramp.
3/ To be built as part of shopping center development.
4/ Entrances off of Rowland Blvd.

Source: EIP, 1979.

2.147 These results indicate that Level of Service "C" (good operation) or better can be maintained at each of the signalized locations.

2.148 Table 7 summarizes the results of the proposed shopping center's impact on the operation of the freeways serving the development.

TABLE 7

SHOPPING CENTER TRAFFIC IMPACT ON FREEWAY SEGMENTS

Road Segment	Direction	1978	Level of Service 1982 Alternative 1	Level of Service 1982 Alternative 2R
U.S. 101				
South of SR 37	N/B	D	E	F
	S/B	B	B	C
Betw. SR 37 & Rowland Blvd.	N/B	C-D	D	D
	S/B	A-B	A-B	B
Betw. Rowland Blvd & DeLong Ave.	N/B	C	C-D	D
	S/B	A	A	A
State Route 37				
East of U.S. 101	W/B	A	A	A
	E/B	A	A	A
Freeway/Ramp Junctions:	Rowland Blvd. Interchange			
Northbound on		C	C	C
Northbound on (Loop)		-	-	C
Northbound off (Direct)		C	C	C
Southbound on (Direct)		C	C	C
Southbound on (Loop)		-	-	C
Southbound off		C	C	C

N/B = Northbound
S/B = Southbound
W/B = Westbound
E/B = Eastbound

Source: EIP, 1979.

2.149 For the case where no development occurs in the Study Area (Alternative #1), traffic volumes are expected to increase to the point where the freeway will be operating at Level of Service E over that portion of U.S. 101 which is south of the State Route 37 junction. Developing the shopping center will have the effect of exacerbating this congested condition. The level of service will reach level "F" for the typical Friday traffic conditions. This freeway congestion is not expected to have any direct effect on local street traffic because of the lack of suitable alternative traffic routes which could be used as a diversion, and the trip characteristics of the travelers on U.S. 101.

2.150 Between State Route 37 and the Rowland Boulevard interchange, the level of service for northbound traffic is not degraded further as a result of the provision of an auxiliary lane for the Rowland Boulevard off-ramp. This auxiliary lane on the northbound freeway would start approximately 1,500 feet south of Rowland Blvd. The purpose of the auxiliary lane would be to increase the capacity of the off-ramp from the northbound freeway to Rowland Blvd. The auxiliary lane would be designated for off-ramp traffic only and the adjacent lane (the current right lane of the freeway main northbound roadway) would be designated for optional use by traffic exiting the freeway and by traffic continuing on the freeway, as the lane is now. The off-ramp would be two lanes wide at its beginning and widen to four lanes at the intersection with Rowland Blvd. Construction of the auxiliary lane would be funded by the developer after approval by all appropriate governmental agencies.

2.151 The shopping center is expected to have only a small but not unacceptable impact on northbound traffic for the segment of U.S. 101 north of the Rowland Boulevard interchange, and no unacceptable impacts on the level of service for southbound travel along each of the U.S. 101 freeway segments.

2.152 State Route 37 is expected to operate at Level of Service "A" for all traffic conditions. Also shown in Table 7 are the results of an analysis of the freeway/ramp junctions. This analysis of ramp capacities indicates that all ramps will be operating at Level of Service "C" or better for a typical Friday.

2.153 Site Access and Circulation. The existing intersection configuration was examined to evaluate its ability to accommodate the additional traffic generated by the proposed shopping center. The analysis revealed that in order to maintain tolerable levels of service, the configuration of the intersections of the freeway ramps and Rowland Boulevard would have to be modified by restriping and ramp widenin. The resulting levels of service are shown in Table 6. The intersection modifications can all be made without major improvements to the existing ramps and Rowland Boulevard (i.e., improvements can be made within existing physical constraints). The proposed traffic signals at the two intersections should be interconnected.

2.154 The interchange configuration shown on Plate 13 is that proposed by the developer. This configuration provides greater capacity, reduced delay, and it meets the latest interchange design policy of Caltrans. The traffic signals at the ramp intersections would be two-phase, rather than three-phase. This would reduce vehicle delay and increase level of service. The Rowland Boulevard interchange was originally designed to be a full cloverleaf. Therefore, providing the two loops will present no engineering difficulties.

2.155 Although provision of a right-turn loop will increase traffic loads in the right-hand lanes, this potential problem will be mitigated by the provision of a 2-lane loop on-ramp. This would be superior to a situation where the same high volume of traffic would have to turn left. The same traffic imbalance would occur as with the loop, but this time in the left-hand lane. Secondly the left turn would have to be made with the aid of a traffic signal, whereas the right turn is always free flowing. This will require many left-turning vehicles to stop, waiting for a green indication. The signal cycle will be lengthened by about 50 percent, potentially delaying each vehicle by up to 60 seconds. Accommodating such a heavy left-turn volume (up to 1,670

peak-hour vehicles if all 3 adjacent parcles are also developed) would require about 900 feet of double left-turn lane storage. This may not leave adequate storage space for left-turning vehicles to the northbound on-ramp.

2.156 The shopping center site plan indicates that sufficient parking will be provided to satisfy the needs of the center. The site plan provides for five parking spaces per 1,000 square feet of gross leasable area (GLA). This exceeds the City of Novato Development Standard of four spaces per 1,000 square feet GLA, but is consistent with the findings of a recent study (EIP, 1977) of parking requirements for regional shopping centers.

2.157 Transit Travel Impacts. There are currently no existing bus routes which serve the shopping center site. Provisions are made on the shopping center site plan for a bus pull-out to serve passengers boarding and alighting. However, because of the street configuration in the vicinity of the shopping center and the location of the bus pull-out at the rear side of the center, routing of buses into and out of the center will be awkward and inefficient. A relocation of the transit stop to a more prominent location could enhance transit service to the center.

2.158 It is not expected however, that even with the inauguration of either a new transit route, or the diversion of an existing route, that a significant number of trips to the shopping center will be made by transit to affect the automobile travel impacts. 1/

2.159 Pedestrian and Bicycle Impacts. Pedestrian and bicycle movements along Rowland, Redwood, and South Novato Boulevards are not expected to be significantly affected by the additional traffic generated by the shopping center. First, there are only limited pedestrian and bicycle movements along these routes. Second, adequate pedestrian and bicycle facilities are in-place to minimize conflicts with automobiles. Third, while traffic along these roads will increase (and therefore the number of potential conflicts will increase), the magnitude of the increase, on the order of 10% to 15%, is not excessive and does not pose a major concern.

2.160 Because of the physical separation between the shopping center and the residential areas in the City of Novato, it is not expected that a large number of walking trips will be made into the shopping center. However, walkways should be provided along the Rowland Boulevard overpass and into the shopping center. Bicycle travel into the center may be significant due to the recreational facilities being planned. To accommodate this potential demand and to maintain continuity with the existing system of bicycle paths in the City, separate bicycle lanes across the Rowland Boulevard overpass and into the center should be provided. If desired, however, the curb lane in one direction across the overpass could be widened to facilitate bicycle movements. Potential conflicts between bicycles, pedestrians and automobiles at the junction of the freeway ramps and Rowland Boulevard will create a potentially hazardous condition that will be difficult to control, and will further discourage access to the center by those modes.

1/ Assuming that bus service to the center would operate at an equivalent 15-30 minute headway during the peak period, using typical load factors, this service would likely divert only 2-4% of the total trips into and out of the center.

2.161 Cumulative Impacts. In analyzing and reporting the traffic impacts of the proposed regional shopping center, it was assumed that there would be no further development of the adjacent lands which comprise the Hanna Ranch property. However in total there remains approximately 50 acres (20 acres to the north and 30 acres to the south) adjacent to the center which could be developed for commercial and industrial uses. Development of the proposed regional shopping center will induce development of these remaining sites. The purpose of this section is to provide an indication of the incremental traffic impact of this subsequent development of the adjacent sites.

2.162 Three adjacent developments are included in this analysis:

- Franklin Avenue Parcel: This is a 22-acre parcel which lies north of the Riley Co. parcel (Parcel 1 on Plate 14). This parcel is zoned M-1 and preliminary plans have been prepared which indicate that an industrial park is being considered for this site. For the purpose of this analysis, it is estimated that 85% of the gross acreage, i.e., 19 acres, be developable. The remainder of the land will be used streets/site access.

  While access to the site is possible by way of Lamont Avenue/ Franklin Avenue which connect to Redwood Boulevard, to minimize the traffic impact to the residential area along Lamont Avenue, it is assumed that access to this site will be provided by a new street which extends northerly from Rowland Boulevard, east of the freeway, through the Riley Co. parcel. This access assumption will maximize the traffic impacts at the vicinity of the Rowland Boulevard Interchange.

- Parcel 1: This is a 19.6 acre site (the Riley Co. site) which lies directly north of the proposed Novato Center. A preliminary development plan indicates that a mixed use commercial area of 227,500 square feet of gross leasable area is being planned for this site. Access to this site will be by a new street extending north from Rowland Boulevard (the same street which would extend to the Franklin Avenue Parcel).

- Parcels 4, 5: This is a 28.2 acre site which lies directly south of the proposed Novato Center. A preliminary site plan indicates that 15.9 acres of this site will be developable as a commercial facility. The remainder of the site will either not be developed or used for streets.

  It was assumed that this site could support a mixed commercial development of approximately 210,000 square feet of gross leasable area. This figure was derived by computing a development intensity factor for the Novato Center (i.e., 928,400 square feet GLA on 70.5 acres = 13,170 square feet GLA per developable acre) and applying this factor to the 15.9 acres of developable land on the site.

Access to the site will be by an extension of Rowland Boulevard running south parallel to the Northwestern Pacific Railroad tracks connecting with Hanna Ranch Road and SR 37. This street also provides the primary access to the Novato Center.

2.163 Trip Generation. Twenty-four hour and evening peak hour traffic generation rates for a typical Friday were derived for each development and applied to estimate the traffic movements into and out of each development. The results of this analysis are summarized in Table 8. Note that the trip generation rate for the industrial park is on a "per acre" basis while the trip rates for the other two developments are expressed in terms of "per 1000 square feet of gross leasable area". Because of the mix of uses that the two commercial sites can support, they were treated as retail shopping centers. (Note that the trip rate for retail centers will vary with the size of the center; the smaller the center, the higher the trip rate.)

2.164 Trip Distribution. The 24-hour and peak hour trips generated for the adjacent developments were distributed in the same manner as was used for the Novato Center traffic; trips were distributed on the basis of the population distribution within the trade area surrounding these developments.

2.165 1990 Background Traffic Projections. In addition to the trips generated by the adjacent developments, it was necessary to account for the increase in traffic traveling on the local streets and the freeways which will occur in the year 1990 as a result of general regional growth and other local developments. This traffic increase is independent of the development of the proposed Novato Center and the adjacent parcels. Growth factors were derived to account for the traffic growth on local streets and freeways, and applied to the 1982 Base Case traffic volumes to obtain the 1990 background traffic projections.

2.166 For the period from 1982 to 1990, the local street traffic was assumed to increase by 20% while the freeway traffic was assumed to increase by 57%. The local street growth factor is equivalant to an annual increase of 2.2% which corresponds to the annual population growth rate projected for the City of Novato. The freeway growth factor is equivalent to a 5.8% annual traffic increase and incorporates the traffic growth expected as a result of regional population growth and the traffic growth expected as a result from known developments in the general vicinity of the proposed shopping center such as Fireman's Fund (San Marin Site) and Hamilton Air Force Base. Because of the inevitable freeway congestion, these traffic projections can be viewed as representing maximum potential traffic demands rather than actual trips. The extent to which this potential is reached will depend to a large degree on the extent and nature of improvements made on U.S. 101 in the future and on the level of useage of the private automobile in the face of increasing fuel scarcity.

TABLE 8

VEHICLE TRIP GENERATION FOR ADJACENT PARCELS

Site	Land Use	Size	Direction	Trip Gen Rate[2/] PM	Trip Gen Rate[2/] 24 Hr.	Total Trips PM	Total Trips 24 Hr.
Franklin Avenue (North of Parcel I)	Indust. Park	19 acre [1/]	In	1.2	34	23	646
			Out	9.0	34	171	646
			Total	10.0	68	194	1,292
Parcel 1	Retail Shopping Center	227,500 glsf	In	2.4	24.5	546	5,574
			Out	2.4	24.5	546	5,574
			Total	4.8	49	1,092	11,148
Parcels 4, 5	Retail Shopping Center	210,000 glsf	In	2.4	24.5	504	5,145
			Out	2.4	24.5	504	5,145
			Total	4.8	49	1,008	10,290

1/ Buildable = 85% gross

2/ Trip generation rates, for a typical Friday, are expressed in terms of trips/acre for industrial site and trips/1000 square feet leasable area for commercial sites.

Source: DeLeuw Cather & Company

2.167 Traffic Assignments. The 1990 background traffic was assigned to the roadway network by directly applying the growth factors to the 1982 traffic volumes. The distributed traffic to and from the adjacent developments were assigned to specific roadways on the basis of selecting the fastest most direct travel route between the starting and ending point of the trip.

2.168 In the case of Parcels 4 and 5, all traffic to and from this development from areas to the north or south of the site were assumed to access U.S. 101 at the Rowland Boulevard interchange rather than via State Road 37. This was done to examine the traffic impact at this critical location under "worst case" conditions. The final traffic assignments for the years 1982 and 1990 are shown in Plates 15 and 16.

2.169 TRAFFIC IMPACT ANALYSIS

2.170 Impact on Local Streets. As shown in Table 9, development of the parcels adjacent to the proposed Hahn Center will have only negligible impact on traffic service at local intersections in Novato. Not until the growth projected for 1990 occurs does a single intersection, South Novato Boulevard/ Rowland, experience any congestion. All other intersections will still operate at a satisfactory level of service during the evening peak hour.

2.171 Impact on the Freeway System. As shown in Table 10, development of the properties adjacent to the proposed Novato Center will deteriorate the level of service on northbound U.S. 101 between SR 37 and the Rowland Boulevard interchange to level of service F. All othr freeway segments will operate at the same level of service as with only the Novato Center developed. Widening of northbound U.S. 101 from Ignacio to Rowland to four lanes will restore the peak hour level of service to D.

TABLE 9

TRAFFIC IMPACTS ON LOCAL STREETS [1/]

INTERSECTION	LEVEL OF SERVICE		
	1982 NOVATO CENTER ONLY [2/]	1982 PLUS ALL DEVELOPMENTS [3/]	1990 PLUS ALL DEVELOPMENTS [3/]
South Novato Blvd & Diablo	B	B	B
South Novato Blvd & Rowland	B	C	D
South Novato Blvd & Sunset Pkwy	B	B	C
South Novato Blvd & Redwood Blvd	A	A	B
Redwood Blvd & Diablo/Delong	B	B	B
Redwood Blvd & Rowland Blvd	B	B	C

1/ For a typical Friday
2/ Includes only Novato Center
3/ Includes adjacent developments

Source: DeLeuw Cather & Company

TABLE 10

FREEWAY LEVEL OF SERVICE[1/]

SEGMENT	DIRECTION	1982 NOVATO CENTER ONLY[2/]	1982 PLUS ALL DEVELOPMENTS[3/]	1990 PLUS ALL DEVELOPMENTS[3/]
U.S. 101:				
S/O SR 37	NB	F	F(D) 4/	F(E-F) 5/
	SB	C	D	F(C) 4/
Between SR 37 & Rowland	NB	D	F(D) 4/	F(D-E) 5/
	SB	B	C	D-F(C) 4/
Between Rowland & Delong	NB	D	D	F(E) 4/
	SB	A	A	C
State Route 37:				
East of U.S. 101	EB	A	A	A
	WB	A	A	A

1/ For a typical Friday
2/ Includes only Novato Center
3/ Includes adjacent developments
4/ Assumes one lane added
5/ Assumes two lanes added

Source: DeLeuw Cather & Company

2.172 The added growth in traffic projected for 1990 will deteriorate traffic service on U.S. 101 to forced flow conditions from Ignacio to De Long Interchange. Widening of the freeway to five lanes northbound and four lanes southbound between Igancio and Rowland improves peak hour traffic service to level of service D-E. Between Rowland and De Long, northbound U.S. 101 requires widening from three to four lanes to maintain a satisfactory level of service. If the freeway is not widened the peak hour will be extended over a longer period, marginal trips will be deferred and the need for traffic management and/or expanded cooridor transit service will become more acute.

2.173 Impact on Adjacent Intersections. Full development of all vacant parcels adjacent to the proposed Novato Center will result in some degradation of traffic service at the intersection of the northbound U.S. 101 off-ramp and Rowland Boulevard in 1982 as shown on Table 11. All the intersections will operate at a satisfactory level of service. However, the traffic service can be restored to good operation by the provision of a "free" right turn lane

from westbound Rowland to northbound U.S. 101. The same mitigation measure will assure good traffic service in 1990. To accommodate the additional growth projected for 1990 at the intersection of southbound U.S. 101 off-ramp and Rowland Boulevard will require provision of a second southbound left turn lane.

TABLE 11

TRAFFIC IMPACTS ON ADJACENT INTERSECTIONS
FOR ALTERNATIVE SHOPPING CENTER ACCESS DESIGN

Intersection	Level of Service 1/		
	1982 NOVATO CENTER ONLY	1982 PLUS ALL DEVELOPMENTS 3/	1990 PLUS ALL DEVELOPMENTS 3/
1. Ramp Junction 7/			
NB 101 Off-Ramp & Rowland	B	D(C) 4/	D(C) 4/
SB 101 Off-Ramp & Rowland	B	C	D(B) 6/
2. Development Entrances			
Parcel 1 & Rowland 5/	-	D	D
North Entrance & Rowland	A	B	B
South Entrance & Rowland	A	A	A

1/ For a typical Friday
2/ Includes only Novato Center
3/ Includes adjacent developments
4/ With WB right turn lane added
5/ Assumes Franklin Avenue Parcel has access through Parcel 1
6/ Add second SB left turn lane
7/ Geometrics as shown in Plate 13

Source: Deleuw Cather & Company

2.174 All intersections along Rowland Boulevard serving adjacent developments will operate at a satisfactory level of service. The left turn from eastbound Rowland Boulevard to the Parcel 1 entrances will require a long left turn lane (300-400 feet) or a double left turn lane to avoid localized congestion and delay.

2.175 Automobile Travel Mitigation Measures. There is no apparent need to make major physical or operational improvements to the local street system beyond those being proposed by the developer. Minor operational improvements will be necessary to insure the efficient movement of traffic. In addition to revising the timing of existing traffic signals, one specific improvement involves striping the westbound approach on Rowland Boulevard at Redwood Boulevard to establish an exclusive right turn lane.

2.176 The section of U.S. 101 South of State Route 37 serving the northbound travel movements is projected to be operating at level of service "E" for the 1982 base case. Inclusion of the shopping center's traffic will have the impact of further degrading the level of service in this freeway segment to level "F". Short of adding another lane to U.S. 101, this problem cannot be resolved. 1/ It should be pointed out that in the event that no further improvements are made and the freeway becomes jammed on a routine basis, drivers will modify their travel behavior. This will be particularly true for persons traveling during the evening, shoppers coming to the center will likely choose to change the time they travel to the shopping center to a time period when the congestion is less critical (i.e., before 4:00 p.m. or after 6:30 p.m.) or take local routes which parallel the freeway. This shift in the time of travel will have a mitigating effect on the congestion which is projected along the U.S. 101 and its northbound off-ramp at the Rowland Boulevard interchange.

2.177 For traffic accessing the shopping center from Route 37, adequate signing (i.e., having the new road to symbolize the center) should be provided to encourage those persons to access the site from the south along Hanna Ranch Road and similarly to return to Route 37 from Hanna Ranch Road, therefore bypassing U.S. 101 and the congestion expected along that road. The developer will pay for all signing required as a result of the development. Through advertising, shopping center patrons can be informed of the advantages of using Route 37 and Hanna Road as an alternative access route. The standard directional signing to those two roads will suffice.

1/ The draft EIS for Hamilton Air Force Base recommends that a northbound auxiliary lane be added to U.S. 101 between the Ignacio Boulevard interchange and State Route 37. This improvement would be effective in reducing traffic congestion over this freeway segment. However, the provision of a northbound auxiliary lane between Ignacio Blvd. and SR 37 is not tied exclusively to the development of a regional shopping center at Hamilton AFB. The auxiliary lane corresponds to the general need to improve the capacity of northbound US 101 as a condition for alternative #2R. Caltrans does not currently have any plans for constructing this auxiliary lane.

2.178 Transit Mitigation. To serve the transportation needs of the young, elderly, and other transit dependent segments of the population, transit service should be established. The opportunity exists for providing both local and intra-regional transit service to the shopping center without making extensive capital investments. Local transit service can initially be provided by rerouting Route No. 1 along Rowland Boulevard and into the center. Intra-regional bus service could be provided by establishing covered bus pads at the Rowland Boulevard interchange where Route 70 could make a new stop.

2.179 Alternative #3. This alternative will generate the same volume of traffic as the shopping center proposed by Alternative #2R and a similar distribution of that traffic over local streets. Traffic distribution and level of service for Highway 101 and 37 may vary slightly from that projected for Alternative #2R depending upon on and off-ramp configurations. However, there would be a significant difference in on-site circulation with this alternative. The extension of Rowland Boulevard east of the freeway would divide the site into two parts. At least one department store and several mall shops would be located north of the street, separated from the larger section of the shopping center south of the street. Pedestrian crossings of Rowland Boulevard at street grade would be hazardous, inconvenient, and a pedestrian bridge would have to connect the two sections of the center.

2.180 Vehicular access to some of the shopping center parking facilities would be inconvenient. The northern section of the site would have approximately 600 feet of frontage on Rowland Boulevard. Considering the need for the longest possible spacing between future traffic signals at the freeway ramps and at the shopping center driveways, the only possible location for a full-service driveway (left-turn and right-turn entry and exit) for the northern section of the site would be at the eastern edge of that section beyond the buildings and the pedestrian overcrossing. Motorists entering the northern section would have to travel along the full length of the frontage of that section, enter the driveway, and double back around the buildings to reach the parking area to the west.

2.181 To minimize the length of the pedestrian bridge spanning Rowland Boulevard, the shopping center buildings would be located very close to the street. There would not be sufficient distance between the buildings and the street to provide an on-site, outer circulation road. On both the northern section and the southern section, all access to the parking area west of the buildings would be limited to the roads adjacent to the faces of the buildings. The concentration of traffic at the building faces could result in high potentials for vehicular--pedestrian conflicts.

2.182 Alternative #4. This alternative would generate the same volume and distribution of traffic as Alternative #2R for the retail section of the site. Additional automobile trips would be generated by the industrial portion of the development. If one assumes that the gross leasable area of the proposed industrial development is one million square feet and industrial uses generate 6 trips per 1,000 square feet gross leasable area, then an additional 6,000 vehicle trips per day would be generated by the industrial area. The peak hour traffic generation will depend upon the type of industrial development. This peak hour traffic will contribute to the morning traffic congestion along U.S. 101.

2.183 Alternative #5. This alternative is expected to generate a similar volume of daily trips (34,500) as the center proposed in Alternative #2 of the draft ES because of equivalent size. The trip distribution is expected to be as follows:

Trip Direction	
North on Highway 101	39.0%
South on Highway 101	57.0
Bel Marin Keys Boulevard	0.6
Ignacio Boulevard	2.6
HAFB (Existing)	0.8
	100.0%

2.184 Exit into the property from U.S. 101, either in a northbound or southbound direction, is not now satisfactory for the anticipated vehicular traffic to be generated by the proposed project. Road improvements would be necessary for any large scale development of HAFB. Marin County's proposal, in their 1976 application to GSA, for the acquisition and development of the base improvements were proposed included the construction of two new access roads. The first would cross Nave Drive and Highway 101, connecting with the Alameda del Prado just north of the HAFB North Gate. The second new access road would connect north from HAFB to Bel Marin Keys Boulevard. Both entrances to HAFB would be widened to four lanes and some improvements would be implemented on surrounding streets. An extra lane would be added to the northbound lanes of U.S. 101 to the Rowland Avenue interchange, and an auxiliary lane between the Ignacio interchange and Highway 37 would be added. Although Marin County's application has been withdrawn, it is assumed that any plan for intensive development of the base would also include these measures. The cost for the improvements (estimated at $3,600,000 by Urban Projects Inc.) would probably be assumed by the developer(s).

2.185 The following table shows the 1978 level of service for key intersections in the project area for 1978 and for 1985 without the HAFB development (without proposed improvements).

TABLE 12

LEVEL OF SERVICE, STUDY AREA 5

Intersection/Segment	1978	1985 Without HAFB Development
Ignacio Blvd. & Enfrente Road	A	D
Bel Marin Keys & Nave Drive (Existing)	A	D
Alameda Del Prado & U.S. 101 SB On/Off Ramp	A	A
Nave Drive & North Entrance to HAFB	A	A
U.S. 101 SB South of Nave Drive	B	B
U.S. 101 NB South of Nave Drive	D	F
U.S. 101 SB North of Ignacio Blvd.	B	C
U.S. 101 NB North of Ignacio Blvd.	D	F

Source: A. D. Little, 1979.

2.186 Levels of Service for development of a regional shopping center have not been prepared. It is assumed that if the proposed road improvements are implemented, vehicular movement on Highway 101 will be improved over the 1985 without development levels.

2.187 Public Transportation. Additional bus transit service would likely be provided to serve the commercial and industrial activity. Since the primary development area is well removed from the freeway, either substantial re-routing or supplemental shuttle buses would be required. Possibly both of these approaches would be used.

2.188 Bicycle and Pedestrian Movement. Traffic will increase significantly on Nave Drive and Alameda del Prado. This will result in increased conflicts between pedestrains/bicycles and automobiles. However, because of the distance from the freeway, it is not expected that a large number of non-auto trips will be made.

2.189 AIR QUALITY

2.190 Present Conditions.

2.191 Alternatives #1-5. Located near the west shore of San Pablo Bay, Novato's climate can be characterized as Mediteranean since nearly all the rainfall occurs during the winter months. The relatively high terrain surrounding Novato affords some protection from the strong marine influence of San Pablo Bay. This results in a slightly greater temperature range for Novato as compared to the rest of Marin County. Temperatures in Novato range from a mean daily maximum of 82°F in July to a mean daily minimum of 38°F in December. Although there are frequent wide fluctuations, the average annual precipitation is 26 to 30 inches. While ocean fog is generally excluded due to the surrounding hills, dense ground fog does occur frequently in the flat areas of Novato.

2.192 The prevailing wind is generally northwesterly with variation depending on the season. Low wind speed occurs frequently as measurements of wind speed taken at nearby Hamilton Air Force Base indicated that 45% of the observations were under 5 mph. Novato's sheltered location together with frequent low wind speeds produces a potential for significant air pollution.

2.193 To realize significant, long-term controls over air problems it is necessary to evaluate a proposed project's impact on a local, subregional, and regional scale. The California State Air Resources Board recommended to EPA that the San Francisco Bay Area be designated as an Air Quality Maintenance Area (AQMA) for carbon monoxide, total suspended particulates, and oxidants since the Ambient Air Quality Standards are not expected to be met by the target year of 1982. To realize significant long-term controls over areas with air pollution problems, a detailed air quality analysis is required for all developments proposed within an AQMA to evaluate the project's impact on the air quality in the region. The air quality analysis conducted to identify impacts on the proposed project alternatives are detailed in Appendix A.

2.194 The nearest air quality monitoring site to Novato is located several miles to the south in San Rafael. Since both Novato and San Rafael are influenced generally by the same climatic factors, air quality data for San Rafael may be considered representative of Novato. Table 13 shows that oxidant and carbon monoxide are air quality concerns near Novato. The precursors of oxidants are hydrocarbons and nitrogen dioxide. Carbon monoxide (CO), hydrocarbon (HC), nitrogen doxide (NO_2), sulfur dioxide (SO_2), and total suspended particulates (TSP) concentrations at the project site have been estimated independently and are discussed in the impact section.

TABLE 13

NUMBER OF DAYS EXCEEDING STATE OR FEDERAL AIR QUALITY STANDARDS IN SAN RAFAEL, 1977 AND 1978 1/

Pollutant	Days Exceeding Standard	
	1977	1978
Oxidant	2	2
Carbon Monoxide	0	1
Nitrogen Dioxide	0	0
Sulfur Dioxide	0 2/	0 2/
Total Suspended Particulate	0	1.6 2/

1/ Bay Area Air Quality Maintenance District.
2/ Percent of observed days when State air quality standard was exceeded.

2.195 Impacts.

2.196 Alternative #1. The "Without Project" conditions shown in Tables A-5 thru A-8 of Appendix A are representative of the no project alternative. Carbon monoxide is the most important pollutant considered for the local analysis. The projected "Without Project" CO concentrations on hypothetical sensitive receptors for both the 1-hour and 8-hour averaging times are less than the concentration levels under existing conditions and no CO concentrations exceed their respective standards. This improvement in CO concentration levels despite the growth in traffic would be primarily due to further development and refinement of vehicular emission control systems. Concerning the subregional scale analysis, Table A-8 indicates that the HC background concentrations are expected to exceed the standards for the 3-hour averaging time. Also, the NO_2 background concentrations are expected to exceed the 1-hour and 1-year standards for all gridsquares except one. All other background pollutant concentrations are well within the limits specified by the Ambient Air Quality Standards. There would be no regional impact.

2.197 Alternative #2R. The local scale analysis reveals that CO concentrations at hypothethical sensitive receptors located 5 meters in distance from the U.S. 101 road links exceed standards for the 1-hour averaging time due to the proposed project. While this may be considered significant, in actuality there are currently no (and it is reasonable to assume none in the future) residences or other sensitive receptors within 5 meters of U.S. 101. Concentrations of CO at other hypothetical sensitive receptors located 5, 20, and 100 meters from the other links do not exceed the standards. The subregional analysis indicates the HC concentrations for the proposed project, with one exception, exceed the standards and the proposed projects's impact on total

concentrations may be considered significant ranging from 14% to 52%. Background concentrations of NO_2 for both the 1-hour and 1-year averaging time, except for one gridsquare, greatly exceed the Ambient Air Quality Standards. The proposed project NO_2 concentrations never exceed 42% of the standards. However, the proposed project's impact on the total concentrations ranges from 13% to 50% and may be considered significant for all gridsquares except one, for the 1-hour averaging time. The regional analysis indicates the project-related emission's impact on the region would be minimal.

2.198 Alternative #3. Same as Alternative #2R.

2.199 Alternative #4. This alternative includes developing all of the 127 acre project site plus 20 acres adjacent to and north of the Rowland Boulevard interchange in accordance with the existing city plans.

2.200 The site would be utilized by developing retail uses on the northern 53 acres and industrial land uses on the remaining 92 acres. It is estimated that the total number of vechicle trips generated during an average day will be greater than the number projected for Alternative #2R. The air quality impacts would be greater than that of Alternative #2R.

2.201 The site would be utilized by developing retail uses on the norhtern 53 acres and industrial land uses on the remaining 92 acres. It is estimated that the total number of vehicle trips generatedudring an average day will be greater than the nunber projected for Alternative #2R. The air quality impacts would be greater than that of Alternative #2R.

2.202 Alternative #5. The local scale analysis reveals that CO concentrations at hypothetical sensitive receptors located 5 meters in distance from U.S. 101 road links for the "With Project" condition exceed the standard for the 2-hour averaging time. However, the "Project Only" concentrations do not impact on the U.S. 101 road links and no other road links exceed the standards for the 1-hour and 8-hour averaging times. The subregional analysis indicates that HC concentrations for both the background and project conditions, with one exception, exceed the standard and the proposed project's impact may be considered significant ranging from 39% to 94%. Background concentrations of NO_2 for on e gridsquare exceed the 1-hour averaging time standard. While the proposed project's NO_2 concentrations never exceed 35% of the standards, the proposed project's impact on the total NO_2 concentrations range from 16% to 86% and may be considered significant. The regional analysis indicates the project-related emissions's impact on the region would be minimal.

2.203 Mitigation.

2.204 Alternatives #2R-5.

2.205 Mitigation of Construction Impacts. An effective water program (complete coverage twice daily) can reduce dust emissions by about 50 percent; reclaimed water should be used when available. Other control measures include scheduling of major dust-generating activities in the early morning hours or at times when the winds are low, and construction phasing such that major earth-moving and demolition activities occur during late fall, and early spring months, when soil has maximum moisture content.

2.206 Mitigation of Traffic-Related Impacts. The mitigation of increased carbon monoxide, hydrocarbon, nitrogen dioxide and other transportation related pollutants is directly related to traffic mitigaion measures. Anv measure that would reduce traffic volumes, such as encouraging transit use, would reduce air emissions. As discussed in the traffic section, however, transit use historically has not had a major impact on shopping center traffic. Employees at the center would be most likely to use transit. A van pooling or car pooling program by the management of the center is one possible alternative to reduce employee auto use.

2.207 Measures that would encourage bicycle use at the center would include secure bicycle parking areas, lockers and showers for employees, and bicycle lanes along project roads.

2.208 Improving traffic flow would also relieve air quality impacts as pollutant emission rates increase rapidly as vehicle speed decreases. Any factor that reduces vehicle speed and increase idling time, such as congestion, will increase pollutant rates.

2.209 NOISE

2.210 Present Conditions.

2.211 Alternatives #1-4. The study is currently open space with no significant noise source. The dominant noise sources affecting the site are: (a) vehicular traffic on U.S. 101, (b) Northwestern Pacific Railroad trains (8 or 10 times a day), and (c) aircraft flights using Hamilton Air Force Base. Presently, few aircraft use the Hamilton air field. Final disposition of the base has not yet been determined, so future flight activity is not known.

2.212 Noise monitoring was performed at the study area in 1973. The monitoring found that average noise levels on the site ranged from below 50 dBA on the east side of the site, to 72 dBA near Highway 101. (A dBA (a-weighted decibel) is a unit of loudness corrected for a variation in response of the typical human ear at common environmental noise levels.) These measurements included a passing train and a number of aircraft passing overhead from Hamilton Field. Except for the area next to Highway 101, tht noise levels presently experienced on the site are expected to be lower than in 1973 due to the reduction in air traffic.

2.213 The City of Novato has adopted the League of California Cities "Neighborhood ambient sound level" goals which indicate that ambient sound levels shouls not exceed 65 dBA for commerical use and 60 dBA for light industrial use. The western edge of the study site presently exceeds these goals due to traffic noise from Highway 101.

2.214 The 1978 Novato General Plan states that land use decisions around airport shall be based on the Noise Exposure Forecast (NEF) contours derived from the maximum probable level of activity. NEF contours for the "maximum possible" level of activity at Hamilton Air Force Base are based upon the nunmber of flights at the base in 1972. The study area is situated on the border between the 30 and 35 NEF zones (Plate 11).

2.215 According to the General Plan, commercial land uses in areas with less than a 35 NEF, and industrial uses in areas with less than 40 NEF are considered "satisfactory." New construction requires no special insulation. Commerical use of the area from 35 to 45 NEF requires that "Construction should be undertaken only aften an analysis of noise is made and noise insulation features included.

2.216 The Federal Highway Administration (FHWA) has also established minimum noise compatibility standards for determining impacts of highway projects. The FHWA criteria for commercial land uses call for L_{10} levels of 75 dBA or below. The L_{10} is the dBA level exceeded 10 percent of the time. The L_{10} for the study area ranged from a high of 77 dBA adjacent to U.S. 101 to 54 dBA near the Northwestern Pacific Railroad tracts according to the monitoring survey undertaken in 1973.

2.217 Alternative #5. Based upon the Noise Exposure Forecast Map (NEF) in the 1978 Novato General Plan, Study Area 5 is within the 40 NEF contour. Commercial activity in this area "should be undertaken only after an analysis is based upon the 1972 air craft acitivity level at Hamilton. Noise generated on site is not significant.

2.218 Impacts.

2.219 Alternative #1. Ambient noise in most of the study area may decrease from the 1973 levels if air traffic at Hamilton Air Force Base is discontinued or if the air field is used by commercial aircraft since commercial jets and general aviation aircraft are quieter than military jets. The portions of the study area closest to Highways 101 and 37 may experience increased noise in the future due to increased vehicular traffic on those routes. There would be no change in noise generated in the study area under this alternative.

2.220 Alternative #2R. The proposed project would be an acceptable land use under the NEF criteria set forth in the Novato General Plan, assuming air traffic levels are not allowed to exceed the 1972 levels of activity. It should be noted that at the time Hamilton has alomost 40 flights per day of noisy military jets (F106s, F4s, T38s and T33s). Since the base has been closed and declared surplus property, military usage is not likely to be resumed. Commercial jets and general aviation aircraft are quieter than military jets, hence the NEF criteria are judged to be "worst case" projections.

2.221 The principal source of on-site generated noise would be from auto and truck noise. This impact would be minor in comparision with the noise generated from traffic on Highway 101. Noise impacts upon the regularly used public spaces would be reduced by the insulating properties of the proposed windowless masonry wall design of the enclosed shopping mall.

2.222 Under the FHWA criteria, the proposed shopping center would be a compatible land use, although its western side, being located about 125 feet from the edge of the freeway would be on, or possibly over, the $L_{10}75$ borderline.

2.223 During the construction phase of the project, most equipment to be used would generate noise levels ranging from 75 dBA to 82 dBA at 100 feet. Pile drivers, however, would generate up to 92 dBA at 100 feet. The nearest sensitive noise receptor is the residential area across the freeway. Because of the distance between the homes and the site (over 800 feet) the construction noise would not exceed the ambient levels experienced today at those homes. The pile drivers, however, may be noticeable because of the sharp staccato character of their sounds.

2.224 Alternative #3. Same as Alternative #2R above.

2.225 Alternative #4. Same as Alternative #2R above, except that industrial activity may increase the noise generated on site. Since no plans have been proposed for this alternative, the magnitude of on-site noise is not known.

2.226 Alternative #5. The noise effects of automobile and truck traffic generated by the proposed project are not expected to be significant.

2.227 Mitigation.

2.228 Alternatives #2R-5. The final design of the project should be reveiwed by a qualified acoustical engineer to insure that the high exterior noise levels are adequately buffered.

2.229 During construction the pile drivers should be shielded so as to reduce the noise transmitted by their operation to the residential neighborhood west of the project site. Construction activity, and particularly pile driving, should not be allowed before 8 a.m. or after 5 p.m. or on weekends/holidays.

2.230 POPULATION, EMPLOYMENT AND HOUSING

2.231 Present Conditions.

2.232 Alternatives #1-5. The population in Marin and southern Sonoma County (generally Petaluma and the Sonoma Valley) serve as the trade area under consideration in this environmental statement. Historical population for major geographic areas are shown in Table 14. Between 1960 and 1970 the population of the trade area increased by 84,000. This rate of increase was significantly greater than the rates for both the State and the San Francisco-Oakland SMSA (Standard Metropolitan Statistical Area), which is composed of the counties of San Francisco, Alameda, Contra Costa, San Mateo and Marin. Since 1970 the growth in population for the trade area has slowed to an annual growth of 1.1%. This growth rate is greater than that for the San Francisco SMSA but less than the growth rate for the State.

2.233 Table 15 presents the trade area population projections prepared by several agencies and a projection of population recommended by Keyser Marston Associates, Inc. The latter projection, which indicates a trade area population of 310,000 in 1980, 325,000 in 1985 and 355,000 in 1990, falls towards the low end of the population projections which have been prepared by the sources indicated in the table. (The upper end of the range incorporates projections in the Marin Countywide Plan which are considerably higher than indicated by recent trends and are considered unrealistic by the Marin County Planning Department in oral communication with Keyser Marston Associates, Inc.) (EIP, 1979.)

TABLE 14

POPULATION TRENDS
(000's)

	1960	1970	1978	Change 1960-1970 #	Change 1960-1970 Annual %	Change 1970-1978 #	Change 1970-1978 Annual %
State of California	15,717	19,953	22,075	4,236	2.4	2,122	1.3
San Francisco SMSA 1/	2,649	3,113	3,197	464	1.6	84	0.3
Marin County	147	207	227	60	3.5	20	1.2
Central Marin	83	116	120	33	3.4	4	0.4
Northern Marin	22	39	47	17	5.9	8	2.4
City of Novato	(18)	(31)	(40)	(13)	(5.6)	(9)	(3.2)
Southern Marin	36	45	48	9	2.3	3	0.8
Rural Marin	6	9	12	3	4.1	3	3.7
Sonoma County	147	205	268	58	3.4	63	3.4
Southern Sonoma	34	58	63	24	5.5	5	1.0
Trade Area 2/	181	265	290	84	3.9	25	1.1

Note: Figures may not add due to rounding.

1/ San Francisco-Oakland Standard Metropolitan Statistical Area, consisting of the counties of San Francisco, Alameda, Contra Costa, San Mateo and Marin.

2/ Marin and Southern Sonoma Counties.

Source: U.S. Bureau of Census
Urban Decision Systems, Inc.
California Department of Finance
Marin County Planning Department (Verbal Communications)
Sonoma County Planning Department
City of Novato Department of Planning

TABLE 15

MARIN AND SOUTHERN SONOMA COUNTIES
POPULATION PROJECTIONS
(000's)

	1978	1980	1985	1990
Marin County				
General Plan				
County Wide Plan	227 1/	260	280	300
Growth Oriented	227 1/	296	330	365
ABAG Series 3	227 1/	225	234	277
State Dept. of Finance	227 1/	228	242	259
Trend, 1970-1978	227 1/	232	247	262
Southern Sonoma County				
ABAG Series 3	63 2/	92 3/	108 3/	128 3/
County of Sonoma	63 2/	75	84 4/	95
Trend, 1970-1978	63 2/	69	73	77
Total Trade Area				
High Range	290	388	438	493
Low Range	290	294	307	336
Selected for Projection Purposes	290	310	325	355

1/ State Department of Finance.
2/ Sonoma County Planning Department (1978 estimate by Keyser Marston Associates, Inc., based on interpolation of 1975-1980 data).
3/ ABAG figures adjusted to conform to census tracts in trade area.
4/ Interpolation of 1980 and 1990 data.

Source: Association of Bay Area Governments, 1975 Data Base, Revised Projections, March 15, 1978.

2.234 Key demographics for the Trade Area, City of Novato, and the San Francisco-Oakland SMSA are presented in Table 16. As shown, the Trade Area and the City of Novato are more affluent, have attained higher educational levels, and account for a higher proportion of professional and managerial personnel than the San Francisco-Oakland SMSA. Professional, managerial, and clerical workers represented almost 60% of the total employed work force for the trade area in 1970.

TABLE 16

DEMOGRAPHIC CHARACTERISTICS

	Trade Area	City of Novato	San Francisco-Oakland SMSA 1/
Income - 1978			
Family Income			
Under - $10,000	13.8%	9.4%	16.5%
$10,000 - $14,999	12.3%	13.6%	14.5%
$15,000 - $24,999	34.3%	35.8%	37.5%
$25,000 - $49,999	32.2%	37.2%	26.6%
$50,000 plus	7.5%	4.1%	5.0%
Average Household Income	$22,400	$22,800	$18,800
Per Capita Income	$ 8,200	$ 7,000	$ 7,500
Education/Population Age 25+ - 1970			
Any College	43.9%	36.0%	33.4%
Median School Years	12.8%	12.7%	12.5%
Occupation - 1970			
Professional/Technical	22.7%	17.9%	18.4%
Manager/Proprietor	14.8%	11.8%	9.8%
Clerical	18.7%	21.2%	23.2%
Sales	10.8%	10.3%	8.4%
Crafts	9.9%	12.0%	12.2%
Operators	6.5%	7.7%	11.3%
Service	12.3%	15.8%	12.6%
Laborer	3.4%	3.1%	3.9%
Farm Worker	0.9%	0.3%	0.3%
Race			
Black	2.1%	3.3%	10.6%
Mexican-American	5.8%	5.9%	11.7%
Other Minority	1.7%	1.8%	6.6%
Caucasian	90.4%	89.0%	71.1%

1/ Standard Metropolitan Statistical Area, consisting of the counties of San Francisco, Alameda, Contra Costa, San Mateo, and Marin.

Source: Urban Decision Systems, Inc.
Keyser Marston Associates, Inc.

2.235 The current condition of housing and housing availability in Novato may be generally classified as expensive and limited. As of October 1978 the average single family house price was $100,600 in Novato (EIP, 1979). The Novato Sanitary District's treatment plant only has the capacity for 500 additional single-family dwelling unit equivalent connections per year until 1981.

2.236 Impacts.

2.237 Alternative #1. No change.

2.238 Alternative #2R. The impact on population is expected to be slight for this alternative. The types of jobs provided by a regional shopping center are related to population impacts. Historically about 75 percent of shopping center employees are unskilled or semi-skilled with spouses of working residents supplementing family income, and youths, of both high school and college age, accounting for the majority of this employment category. A limited number of professional and managerial employment would result from the shopping center. Since few of the shopping center employees would be career sales people who are the primary source of family income and since housing costs would be prohibitively expensive for this category of employees, the relocation of shopping center employees to Novato would be minimal. As an example, major retailers at Northgate Shopping Center and at the Hilltop Center in Richmond have not experienced an influx of their out-of-area employees into the vicinity of the centers (EIP, 1979).

2.239 The proposed shopping center would provide for about 2,000 permanent jobs based on one employee per 500 square feet of building area. Most of the jobs would be for retail personnel, with jobs also available for cooks, clerks, janitors, security guards and others. Since youths and spouses comprise the largest share of the county's unemployed and underemployed population the shopping center would provide job opportunities for the unskilled and semi-skilled members of the unemployed work force as well as "clear" part-time positions. Development of the project would generate 550-600 person years of employment in the construction trades.

2.240 The proposed project does not include any housing and no displacement of residents from the site would occur when development is fully realized. Since most of the nearly 2,000 jobs created by the proposed project would be filled by youths and spouses supplementing the family income, few prospective employees are expected to relocate to Novato. Managerial and professional employees would probably relocate to the immediate area.

2.241 Alternative #3. Same as Alternative #2R.

2.242 Alternative #4. Population and housing impacts would generally be similar to Alternative #2R given the cost of housing and the management policies that regulate and limit growth. In addition to the approximately 2,000 jobs created by the shopping center, jobs would be created in response to the industrial development of the southerly 92 acres. The number of jobs associated with the 92 acres would depend on the type of industrial development, e.g., manufacturing, warehousing, professional and administrative offices, laboratories.

2.243 Alternative #5. Same as Alternative #2R.

2.244 LAND USE PLANS/POLICIES

2.245 Present Conditions.

2.246 Alternatives #1-4. The site is presently vacant but has been used for many years for grazing and fodder production. Some flood control construction in the form of the Lynwood Slough, weirs and a flood gate is evident.

2.247 Immediately adjacent to the eastern boundary of the proposed shopping center development is the Northwestern Pacific Railroad, beyond which is reclaimed marsh and agricultural land. To the north of the site, on Redwood Boulevard, is an area of mixed commercial/residential development including car sales, boat sales, a hardwood store, restaurants, a trailer park and apartments. To the west of the site, beyond Highway 101 is a residential area of both single family homes and condominium development. To the south, beyond Highway 37, is an area used for dry grazing.

2.248 Federal Wetland and Flood Plain Policies. As described in paragraph 1.30ff Federal policy discourages destruction of wetlands and modification of flood plains for Federal projects and federally permitted projects. Alternatives #1-4 are all located within the 100-year flood plain (Plate 4) and Alternatives #2R and #4 are located in a wetland area.

2.249 State Wetland Policy. As stated in paragraph 1.33, the State Resources Agency has determined that the State Wetlands Policy does not apply to the project area.

2.250 City of Novato. The Novato General Plan (amended December 1978) states the following land use goals:

"The City shall put the land to its best use for the long-term benefit of the existing and future residents, including better economic balance by creating a greater number of jobs in the community."

"In making land use decisions, including location, timing, density, intensity, and design, the City shall be guided by the following considerations:

a. Efficient utilization of existing public facilities (roads, transit, schools, utilities, etc.).

b. Efficient utilization of existing private facilities (shopping centers, medical facilities, employment locations, etc.).

c. Adopted programs or expansion plans of utilities and other service agencies.

d. Minimizing auto traffic and availability of public transportation.

e. The level of available or budgeted fire protection service.

f. Natural hazards, including geologic, seismic, fire and flood.

g. Financial impacts on the tax base and service responsibilities of the City and other public agencies.

h. Other considerations not listed above which may be pertinent for any particular case.

i. Maintaining and improving the social and economic stability of existing neighborhoods.

2.241 Additional land use policies of relevance to the development are:

a. Commercial and industrial uses shall be located to minimize truck traffic on City streets.

b. Convenience shopping should be located in neighborhoods; other stores and services should be encouraged to be located downtown, or where demonstrable need can be proven.

c. Highway (freeway) oriented commerical facilities should be encouraged in existing commerical areas in accordance with the Land Use Element Map.

d. Appropriate buffers shall be provided between residential neighborhoods and commerical or industrial development.

2.252 The Conservation and Open Space Element of the General Plan provides that:

a. The City shall not permit excessive grading, particularly canyon fills, sidehill cuts, and "daylighting" (grading of the top) of ridges and knolls, for development purposes.

b. Open Space - The City shall assist neighborhood residents in creating "neighborhood identity buffers" and connecting greenways".

2.253 Land Use Designations. The project area north of Lynwood Slough is zoned for commerical uses (C-P). The area south of Lynwood Slough is zoned for industry (M-P). Uses permitted for these areas are described as follows:

C-P: "retail sales and personal service uses normal to the commercial core of the community which are conducted entirely within a closed structure and are compatible with surrounding traffic patterns, office and professional service uses, multiple-residential and transient residential uses."

M-P: "temporary short-term, open land uses which do not involve permanent physical improvements to the property, industrial and manufacturing uses, laboratories, sale or repair of industrial or manufacturing equipment, warehousing, wholesale distribution or storage uses, small retail and/or service commerical uses."

2.254 County of Marin. The Marin Countywide Plan (1973) designates most of the study area as urban open space and the remainder as developable. The plan provides a general guide for the preparation of more detailed local plans. It does not replace or substitute for local plans.

2.255 In the plan, downtown Novato is defined as a county-wide activity center which includes a future regional-level shopping center. The plan suggests strengthening the downtown center by prohibiting anything except local retail facilities in other parts of Novato.

2.256 Association of Bay Area Governments (ABAG). ABAG is a voluntary council of local governments formed to meet regional problems by cooperative action of cities and counties. ABAG's Regional Plan 1970-1990 designates Novato as a community center and as such should center around a core of intense activity where commercial, governmental, cultural, recreational, health and educational services are provided. The plan also contains comments about subregional planning areas. The project site is designated for predominantly basic employment.

2.257 Alternative #5. The study area is mostly open space with some buildings on the southeast portions and amunition storage facilities in the north. The surrounding land contains Army, Navy, and Coast Guard Facilities including an 8,000 foot long air strip. The property is wholly within the boundaries of the City of Novato. The Hamilton Base site represents one of the larger land holdings potentially on the market in the urban corridor of Marin County.

2.258 Federal Government. In March of 1976 the General Services Administration (GSA) declared certain portions of the base (approximately 1650 acres) to be excess government property. Recently GSA completed a study of alternative uses of the site. A Memorandum of Decision for disposal and use of Federal property at Hamilton Air Force Base was released on 24 June 1980. The document determined that most of the lowland portion of the site woiuld be transferred to the U.S. Fish and Wildlife Service to become part of a wildlife preserve, and most of the upland portion would be sold to the City of Novato and Marin County for future development as planned by those agencies.

2.259 Portions of the study area are within the flood plain of the 100-year flood. Federal policy on regulatory permits discourages development in the flood plain.

2.260 City of Novato. The General Plan indicates that the citizens and official agencies have expressed strong opposition to future aviation use, based on possible economic liabilities, uncertainty of local control, and potential environmental impact. In recognition of that opposition, the City's policy is to achieve nonaviation uses. The City will develop policies and programs's to maximize the public benefit from this area.

2.261 San Francisco Bay Conservation and Development Commission (BCDC). BCDC's San Francisco Bay Plan states that when the Hamilton Air Force Base is not needed by the Air Force, the "site should be evaluated for commerical or industrial airport use as part of regional airport system study; keep runway approach and take off areas clear of tall structures and incompatible uses." BCDC may revise this designation pending the results of the current study by the North Bay Aviation Policy Subcommittee of the Metropolitan Transportation Commission (MTC) of future aviation needs in north San Francisco Bay. The study is scheduled to be completed by August 1980.

2.262 BCDC's jurisdiction extends 100 feet inland from the line of highest tidal action, therefore the regional shopping center site is outside BCDC jurisdiction.

2.263 Association of Bay Area Governments (ABAG). Hamilton Air Force Base is one of four possible sites proposed by ABAG and the Metropolitan Transportation Commission as a potential regional airport for the north bay. Regional commerical use is opposed by Marin County.

2.264 Impacts.

2.265 Alternative #1. This alternative would not change current land use on the site. It would remain as open space, in conflict with city land use plans.

2.266 Alternative #2R. This alternative would convert the project site from open space to commercial use.

2.267 Zoning. This alternative would require an amendment to the Novato General Plan to change the zoning of the southern 92 acres of the project site from industrial use (M-P) to commerical use (C-P). The City of Novato is currently considering this change. Amending the General Plan requires submission to the City of an Environmental Impact Report (EIR) on the proposed project. The EIR was approved by the City Council in Resolution #119-79 dated October 16, 1979. The proposed use is compatible with the current zoning (C-P) for the area north of Lynwood Slough.

2.268 City. This alternative would provide additional employment in the Novato area, so it is consistent with the general plan in this respect. The project would utilize existing highways so truck traffic on city streets would be minimized, however, the project as designed would not minimize auto traffic, nor encourage use of public transportation, but auto travel to more distant shopping centers would be reduced.

2.269 The project would increase the City's tax base as described in paragraph 2.291. Comparison shopping would be provided, however, it would not be consistent with the stated city goal to locate commerical facilities in downtown Novato. In conversations with the Novato Planning Department it has been determined that there is a lack of developable land sites large enough to accommodate a regional shopping center downtown. The Hanna Road site is the closest available site to the City for a shopping center.

2.270 County. Most of the proposed project would be built in an area which has been recommended by the county to remain as open space. The proposed shopping center will also compete with a small number of shops in the downtown area in conflict with the recommendation of the county plan.

2.271 ABAG. This alternative would be consistent with the concept of a city-centered region and would provide additional commerical facilities, and employment opportunities in Novato.

2.272 Alternative #3. Same as Alternative #2R except that a zoning change would not be required and the existing wetland would be preserved. The southern half of site would remain open space.

2.273 Alternative #4. Same as Alternative #2R above, except that a zoning change would not be required.

2.274 Alternative #5. This alternative would involve construction of a 77-acre regional shopping center in what is now primarily open space. The Corps is considering this alternative as it was presented in Marin County's 1976 application to GSA. Although Marin County's application has been withdrawn a regional shopping center is still a possibility since the property will be sold to the County of Marin and the City of Novato. Either of these agencies may allow a shopping center development on the site. However, due to institutional constraints and the time required to provide adequate access to the site, this alternative is not considered feasible at this time.

2.275 City of Novato. A regional shopping center on this site would conflict with the city's goal to consolidate commerical activity downtown. This alternative would create competition to the shops in the downtown area. Surface street traffic through Novato would not be increased by this alternative. Extensive grading would not be required.

2.276 BCDC and ABAG. This alternative would not affect the potential for a regional airport on the HAFB site.

2.277 ECONOMICS

2.278 Present Conditions.

2.279 Alternatives #1-5. There are basically two types of retailing: convenience and comparison shopping. Convenience shopping occurs within close proximity to one's residence and consists of those items needed on a regular basis such as food and drug items. Comparison shopping involves the purchase of items from a selection of goods which are usually offered in several different stores. Comparison goods include general merchandise, apparel, furniture and miscellaneous speciality items. The market area for a comparsion shopping retail center usually extends for a radius of 8 to 10 miles which is much larger than that for a convenience good retail center.

2.280 There are three basic types of retail concentrations: the neighborhood center, the community center, and the regional center. The characteristics of the various retail concentrations are shown in Table 17. An example of the neighborhood center is Pacheco Plaza in Novato, which retails primarily convenience goods, with comparison shopping occupying less than half of the retail area. The Nave Shopping Center in Novato is an example of the community center type of retail concentration. Up to two-thirds of the space in a community center can be used for comparison shopping and the major tenant is usually a variety, discount or junior department store or a major convenience store like a supermarket.

TABLE 17

TYPES OF RETAIL CONCENTRATIONS

	Neighborhood Center	Community Center	Regional Center
Major Tenants	Supermarket and/or drug.	Variety store, discount, or junior department store, supermarket.	Two or more full-line department stores of at least 100,000 sq. ft.
Typical Retail Area	30,000-100,000 Square Feet.	100,000-300,000 Square Feet.	300,000-1,000,000+ Square Feet.
Usual Minimum Site Area	3-5 Acres.	10+ Acres.	30-50+ Acres.
Support Required	5,000-25,000 People.	40,000-150,000 People.	150,000+ People.
Typical Draw	1-2 Miles.	3-5 Miles.	8-10 Miles.
Major Type of Goods Offered	Food, drugs, liquor and services such as dry cleaners etc.	General merchandise small appliances, food, drugs, apparel and services.	Department store type goods, i.e., apparel, furniture large appliances, jewelery, sporting goods, etc.

Source: Urban Land Institute, Shopping Center Development Handbook, Keyser Marston Associates, Inc.

2.281 The bulk of comparison shopping is done at regional centers. These regional centers, such as Northgate Shopping Center in San Rafael, can vary in size from 300,000 to over 1,000,000 square feet of retail area. The strength of regional centers is dependent on the two to five department stores that serve as anchors to the shopping complex.

2.282 The larger retail complexes in Marin and southern Sonoma Counties are shown in Table 18 and Plate 12, along with proposed major projects. The major retail center nearest to the site is downtown Novato, which consists of a traditional downtown retail area on Grant Avenue and several community shopping centers anchored by supermarkets, super drug stores, and large women's apparel stores. The separate retail centers in the downtown do not function effectively as a single coherent commerical district (EIP, 1979).

2.283 Also, shown are major proposed retail projects in the trade area excluding the Novato Center project. Of the four proposed projects, two (Marin Mall and Larkspur Fashion Mall, were rejected by the City Councils of Corte Madera and Larkspur in January, 1979. However, the City of Corte Madera requested the developer submit a reduced plan for Marin Mall. A reduced plan indicating approximately 400,000 square feet of retail space has been prepared and is awaiting local approval. The remaining proposed projects have a combined retail area of 890,000 square feet of which approximately 780,000 square feet would be devoted to comparison goods space. Of the 780,000 square feet perhaps 440,000 square feet would be for department stores.

2.284 Sales trends for Marin and southern Sonoma County are shown in Tables 19 and 20. The general conclusion is that sales trends for the trade area compare favorably in the 1970-1977 period to sales trends in the SMSA. For the entire trade area and for all taxable retail goods, sales increased 38% from 1970 to 1977, compared to 19% for the SMSA, in constant 1976 dollars. Table 20 shows the 1970-1977 trend in taxable retail sales for comparison goods in the trade area. The table indicates a real (non-inflationary) growth of $63.6 million in sales of these items in the trade area since 1970, a rate of increase of 4.7% annually. Based on first quarter 1978 results, 1978 sales are estimated at about $245 million (Keyser Marston Associates, Inc., 1978).

2.285 Calculation of retail potential is based on the dollar expenditures for comparison type retail goods in the trade area. These expenditures were estimated by comparing per capita incomes in the trade area with incomes in the entire San Francisco - Oakland SMSA and adjusting per capita sales in the SMSA to reflect the incomes in the trade area. Per capita income in the SMSA is $7,500 compared to $8,200 in the trade area. Per capita comparison goods sales in 1978 for the SMSA were estimated at $1,040. The 1978 per capita expenditure level in the trade area is estimated at $1,200, based on a similar ratio of expenditures for these types of retail goods to per capita income.

TABLE 18

MARIN AND SOUTHERN SONOMA COUNTY
LARGER RETAIL COMPLEXES

Center	Location	Map Key	Retail Area (Sq. Ft.)	Timing	Major Tenants
Present Larger Centers					
Northgate Shopping Center	San Rafael	1	640,000	1965	Sears (200,000 sq. ft.) Emporium (270,000 sq. ft.).
Downtown San Rafael	San Rafael	2	250,000	--	Macy's (75,000 sq. ft.) J.C. Penny (25,000 sq. ft.)
Corte Madera Shopping Center	Corte Madera	3	240,000	1958	J.C. Penny (45,000 sq. ft) Montgomery Ward (65,000 sq. ft.)
Downtown Mill Valley	Mill Valley	4	125,000	--	--
Larkspur Landing	Larkspur	5	170,000	1978	Fry's Market (40,000 sq. ft.)
Central Sausalito	Sausalito	6	85,000	--	--
San Anselmo	San Anselmo	7	185,000	--	--
Town and Country Village	Mill Valley	8	95,000	1965	--
Downtown Novato[1/]	Novato	9	400,000	--	--
Major Petaluma Stores	Petaluma	10	100,000	1973-76	J.C. Penny (50,000 sq. ft.) Mervyn's (50,000 sq. ft.)
K-Mart and Ancillary	Petaluma	13	190,000	1980-81	K-Mart (85,000 sq. ft.)
Total			2,480,000		

TABLE 18
(Cont'd)

MARIN AND SOUTHERN SONOMA COUNTY
LARGER RETAIL COMPLEXES

Center	Location	Map Key	Retail Area (Sq. Ft.)	Timing	Major Tenants
Proposed Major Projects Other Than Novato Regional Shopping Center					
Marin Mall 2/	Corte Madera	11	670,000	1980 or Later	Macy's (180,000 sq. ft.) Bullock's (145,000 sq. ft.)
Larkspur Fashion Mall 2/	Larkspur	12	475,000	1980-81	Unannounced (260,000 sq. ft.)
Corte Madera Shopping Center Expansion	Corte Madera	3	±300,000	1980-81	Possible major department store and expansion of existing center.
Total			1,445,000		

1/ Includes several shopping areas.
2/ Development plan turned down by City Council in January 1979. Corte Madera project (Marin Mall) has been redesigned to about 400,000 sq.ft. and submitted for city approval; no action presently appears likely for the Larkspur Fashion Mall.

Source: Keyser Marston Associates, Inc.

TABLE 19

NUMBER OF OUTLETS AND TAXABLE RETAIL SALES

	Outlets			Sales		
	1970	1977	%Change	1970	1977	%Change
				($000's 1976)		
Marin County	1,684	2,314	37.4	401,800	546,400	36.0
City of Novato	(171)	(242)	(41.5)	(44,200)	(69,000)	(56.1)
Southern Sonoma County	360	485	34.7	71,200	106,700	49.9
Petaluma	(262)	(343)	(30.9)	(57,400)	(84,000)	(46.3)
Sonoma	(98)	(142)	(44.9)	(13,800)	(22,700)	(64.5)
Trade Area Total	2,044	2,799	36.9	473,000	653,100	38.1
San Francisco SMSA	25,917	28,566	10.2	6,595,900	7,857,000	19.1

Note: For the purpose of comparability, sales totals exclude sales by service stations; the state gasoline sales tax became effective in 1972.

Source: California State Board of Equalization
Keyser Marston Associates, Inc.

TABLE 20

MARIN AND SOUTHERN SONOMA COUNTIES
TAXABLE RETAIL SALES/COMPARISON GOODS
($000's 1976)

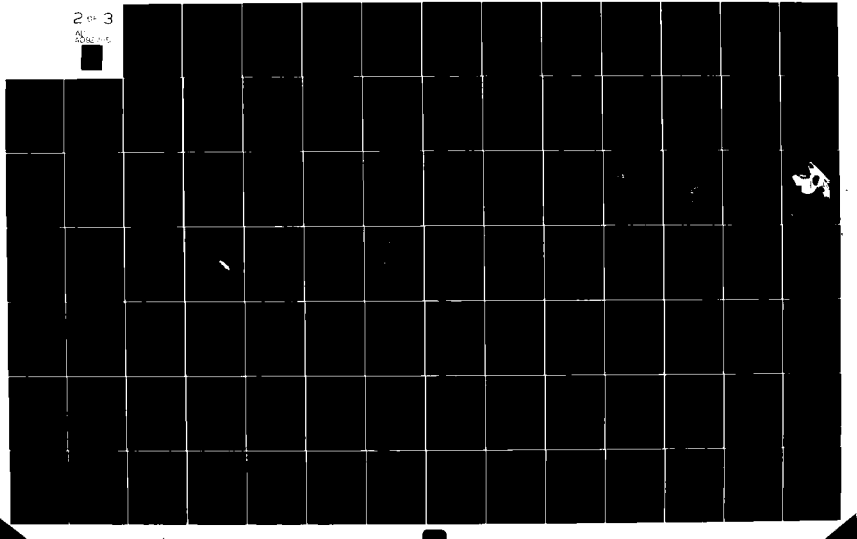
			Change, 1970-1977		
Store Type	1970	1977	($000's)	Annual%	1978 (Est.)
Apparel	$31,500	$42,200	$10,700	4.3	$45,000
General Merchandise	69,800	90,500	20,700	3.8	95,000
Furniture, Home Furn.	25,200	36,500	11,300	5.4	39,000
Specialty	41,500	62,400	20,900	6.0	66,000
TOTAL COMPARISON GOODS	$168,000	$231,600	$63,600	4.7	$245,000

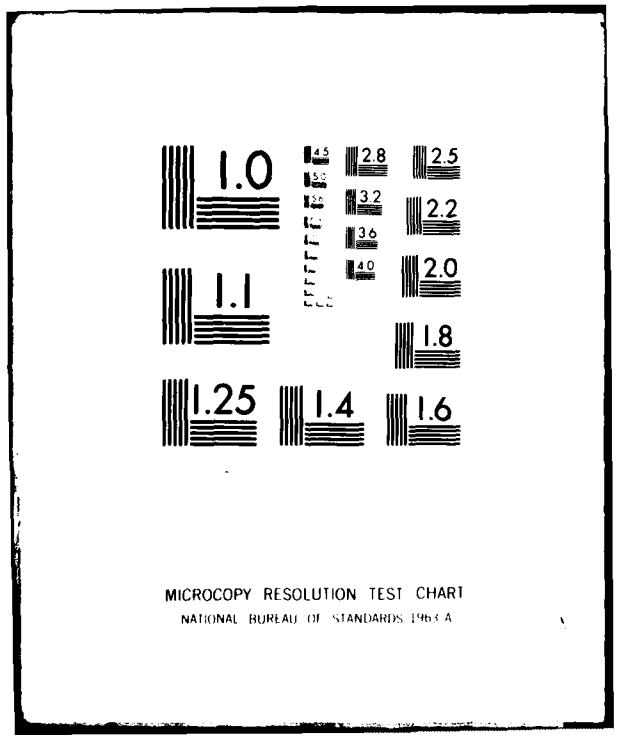
Source: California State of Board of Equalization
Keyser Marston Associates, Inc.

AD-A092 785 CORPS OF ENGINEERS SAN FRANCISCO CALIF SAN FRANCISCO--ETC F/G 13/2
NAVATO CENTER REGULATORY PERMIT APPLICATION BY NOVATO CENTER IN--ETC(U)
NOV 80

UNCLASSIFIED NL

2 OF 3
AD A092785




1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
4.5
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963 A

2.286 Table 21 provides a residual analysis of comparison goods retail potential in the trade area from 1978 to 1990. In a residual analysis, present sales are deducted from the potential in the trade area to provide an estimate of the absorptive capacity of the market for new retail space. As noted in the table, present market demand warrants the addition of 700,000 sq. ft. of comparison goods retail space in the trade area, increasing to 1,100,000 sq. ft. in 1980, 1,600,000 sq. ft. in 1985 and 2,300,000 sq. ft. in 1990. In summary, the analysis indicates potential sufficient to support one major regional shopping center of approximately 1,000,000 sq. ft. by 1980 or two smaller centers (Keyser Marston Associates, Inc., 1978).

2.287 An important consideration is the availability of major department stores to anchor regional shopping center projects. Table 22 shows major tenant availability for regional shopping centers in the trade area. It is concluded that there are a sufficient number of retailers under-represented or unrepresented to anchor two major regional centers or a greater number of smaller centers to include expansions of existing centers (EIP, 1979).

2.288 Impacts.

2.289 Alternative #1. No impact.

2.290 Alternative #2R. The establishment of a regional shopping center would affect the potential sales of existing commercial establishments in downtown Novato. The downtown retailing area of Novato is generally considered to be Grant Avenue, east and west of North Redwood which has a number of small comparison goods stores. Novato does not have any major department stores or a unified shopping district. The trade area of downtown Novato and the proposed regional shopping center would overlap with a more extensive array of goods offered at the proposed shopping center project. It is estimated that about 15 stores on Grand Avenue could be at a substantial competitive disadvantage with development of the proposed project. Impacts on the community shopping areas in downtown Novato would be slight owing to the absence in these areas of a significant amount of comparison goods retail space. Two large women's apparel stores which are major tenants at these centers would be adversely affected since the proposed project would provide a greater opportunity to comparison shop in these merchandise lines (Keyser Marston Associates, Inc., 1978). The adverse effect on the downtown stores would be the greatest during the first few years of the proposed project's existence. Following this, population and real income growth would serve to increase the sales of all existing establishments. It is not expected that the proposed project would cause existing establishments to be nonviable since there is an existing demand for a regional shopping center.

TABLE 21

MARIN AND SOUTHERN SONOMA COUNTY
COMPARISON GOODS POTENTIAL
OTHER STORES
(Sq. Ft.)

	1978	1980	1985	1990
Total Residual Potential for Comparsion Goods	700,000	1,100,000	1,600,000	2,300,000
Department Store Residual Potential	400,000	600,000	700,000	1,000,000
Other Comparsion Goods Stores Residual Potential	300,000	500,000	900,000	1,300,000

Source: Keyser Marston Associates, Inc.

TABLE 22

MAJOR DEPARTMENT STORE
REPRESENTATION IN TRADE AREA

	Fully Represented in Trade Area	Under-Represented in Trade Area	Unrepresented in Trade Area
Bullock's			X
The Emporium	X		
Liberty House			X
Macy's		X	
J. C. Penny		X	
Sears	X		
Montgomery Ward		X	
Mervyn's		X	
Fashion Specialty Stores			
Saks			X
J. Magnin			X
I. Magnin			X
Nordstrom			X 1/
Neiman Marcus			X 1/

1/ Unrepresented in Northern California.

Source: Keyser Marston Associates, Inc.

2.291 The fiscal impact of the proposed project on the City of Novato is shown in Table 23. The annual revenues and costs shown in the table represent a shopping center that has opened and stabilized its sales volume three years after starting operation. Annual gross revenues in 1978 dollars are estimated at $910,000 with estimated increased City costs of $220,000. The City of Novato would realize a surplus of revenues over costs of about $700,000. This table assumes that tax revenues will be distributed under the current formulas. It should be noted that redistribution of these revenues, due to revised formulas, would change the estimates.

2.292 In addition to the City of Novato, other County entities would receive property tax revenues from the proposed project. Total property tax revenues to all Marin County entities due to the proposed project at full development would be about $700,000 annually with the County receiving about $140,000 annually.

2.293 Alternative #3. Same as Alternative #2R.

2.294 Alternative #4. The northern portion of the site, zoned C-P, has the potential for use as retail sales/personal services, office/professional service, and transient residential. Market support is rated highly favorable for the retail sales/personal services due to the shortage of retail space in the trade area. When considering a regional shopping center the impact would be the same as Alternative #2R. Office/professional service use is rated as poor due to the following reasons: (1) Marin County has yet to establish itself as a major office center; (2) projects proposed or under construction elsewhere in the County will absorb most of the projected demand; (3) the site is not part of or adjacent to an established office center; and (4) the site does not enjoy unusual visual or other amenities in comparison to other available sites (EIP, 1979). The transient residential use also does not appear to be favorable due to the following: (1) business would be almost entirely dependent upon the transient business traveler since there is no major tourist attraction or convention facility near the site; (2) unusually favorable amenity factors are absent; and (3) present major facilities in Marin County are achieving unexceptional annual occupancy rates, with substantial vacancy in the winter months (EIP, 1979).

TABLE 23

CITY OF NOVATO
ESTIMATED ANNUAL REVENUES AND COSTS
NOVATO REGIONAL SHOPPING CENTER
(1978 Dollars)

Revenues	
Property Tax 1/	$ 10,000
Business License Fees 2/	10,000
Retail Sales Tax 3/	850,000
Cigarette Tax 4/	40,000
Total	$910,000
Costs	
Public Works 5/	$ 40,000
Fire 6/	Minimal
Police 7/	180,000
Total	$220,000
Revenue Surplus	about $700,000

1/ Assumes market valuation of $70/sq. ft., with City of Novato share of proceeds as per 8/13/78 memorandum from Marin County Auditor-Controller to all taxing entities in Marin County.
2/ As per fee schedule supplied by City of Novato.
3/ Assumes stabilized taxable sales volume of $90 million x City share of sales tax receipts (or .95% of $90M).
4/ Estimate, based on relation between cigarette and sales tax receipts, City of Novato, adjusted by Keyser Marston Associates, Inc.
5/ Based on cost estimates provided by City of Novato Department of Public Works (communication of 10/31/78).
6/ Based on written communication with Novato Fire Protection District (11/14/78).
7/ Based on discussion with Novato Crime Prevention Department (11/29/78); estimate assumes amortization of $40,000 of one-time costs at annual constant of .10.

Source: Keyser Marston Associates, Inc.

2.295 The southern portion of the site, zoned M-P, permits a range of industrial/warehouse uses. These uses would be attractive for the following reasons: (1) the site has good exposure and access; (2) land costs are more favorable in northern Marin County compared to the major industral concentration in the vicinity of the Highway 101-17 interchange; and (3) most of the space in existing industrial parks has been absorbed. Potential at the site

may be viewed against the background of recent countywide absorption of 25 acres per year of industrial land in the major parks, and long term absorption trends of 10 acres per year. Most of the industries would be small space users, not transportation intensive, such as light manufacturing, research and development, local distribution and office related concerns.

2.296 Alternative #5. Similar to Alternative #2R.

2.297 PUBLIC SERVICE/UTILITIES

2.298 Present Conditions/Impacts of Alternatives.

2.299 Police.

2.300 Alternative #1. Selection of Alternative #1 would result in no additional need for any public services and utilities. Present police, fire and emergency coverage and the existing storm drainage system are sufficient to serve the site in its present undeveloped state, without any additional public expense. No further discussion of this alternative will be made in the remainder of this section since no changes in this area of concern are anticipated.

2.301 Alternative #2R. Selection of this alternative would require additional police services as estimated below:

Personnel (Incl. Training & Equipment)		Equipment	
2.7 Patrol Officers	@$27,447 Per Person ($74,107)	1 Marked Patrol Unit	@$20,589
1 Support Service Person	@$12,248	1 Plain Patrol Unit	@$11,723
1 Investigator	@$22,447	1 Portable Radio	@$ 2,014
Total	$108,802	Total	$34,326

(EIP, 1979)

2.302 The above personnel and equipment (total cost - $143,128) would be used to handle such activities as shoplifting, burglary, grand theft, and bad checks. This figure represents approximately 10% of the annual police budget. The additional officers would also likely provide some traffic control during peak traffic periods or for accidents, and patrol the city streets around the project. Response to accidents and other emergency situations both on the project site and on city streets would also require the services of medical emergency personnel, usually the fire department.

2.303 Under Alternative #2R the shopping center itself would provide its own security personnel for internal traffic control and crime prevention. Since these persons would not be law enforcement officers, all security would have to be coordinated with the Novato Police Department. The applicant has proposed an off-premise control security alarm system, which would contact the Novato Police Department upon verification of unauthorized entry. This system should reduce public and private personnel needs and costs to protect property during non-business hours.

2.304 The California Highway Patrol would be responsible for normal patrol duties along U.S. 101 and Highway 37 and the on and off ramps to these routes.

2.305 Alternative #3. Selection of this alternative would create demand for additional police services similar to Alternative #2R. Security measures similar to those of Alternative #2R would also likely be utilized in this development plan to reduce the need for police services.

2.306 Alternative #4. Selection of this alternative would create increased demand for additional police services. The retail portion of the development plan would likely require the equivalent amount of police services as Alternative #2R. Demand for such services in the industrial southern portion of the development would require additional police services. The amount of the new services required would depend upon the type and number of business firms and the degree of private security provided by the firms.

2.307 Alternative #5. Additional police services for this alternative would be needed to perform the same function as described in Alternative #2R. Estimated police manning requirements and costs are itemized below, given a development of about the same size and type (a 70+ acre regional shopping center):

Personnel (Including Training & Equipment)				Equipment (Support)	
3 Sworn Officers	@$23,400	=	$70,200	1 Patrol Unit	@$16,500 ea
1 Support Person	@$12,000	=	$12,000		
Total			$82,200	Total	$16,500

(Adapted from A.D. Little, 1979; unit costs differ from those shown in Alternative #2R as different sources were consulted.)

2.308 The annual total costs of these police services are estimated to be about $98,700 (in 1978 dollars). Private security measures similar to those proposed in Alternative #2R would probably be used in this development plan, reducing the demand for increased police services.

2.309 Fire Protection.

2.310 Alternative #1. No change.

2.311 Alternative #2R. The Novato Fire Protection District would be responsible for providing fire-fighting and rescue service for this development plan. The district has indicated that no expansion of service is expected for this development, due to budgetary restrictions brought about by the 1978 passage of Proposition 13. To aid in improving fire-fighting ability and in fire prevention, an automatic sprinkler system with radio alarm boxes would be required by the district and to comply with fire insurance company requirements.

2.312 Alternative #3. The same requirements for fire-prevention and fire-fighting devices would apply for this alternative. Even though Alternative #3 is smaller in areal extent than Alternative #2R, potential need for fire and rescue services would likely be the same since construction, design, function, and fire risk would be similar for both alternatives.

2.313 Alternative #4. Since this alternative involves both retail and industrial uses, demand for services would both increase and vary depending upon the type of business, products and potential hazards. Similar demands for fire district services can be expected in the northern commercial area as described for Alternative #3. The southern, industrial portion of this development plan may create additional fire hazards if firms located in the development used or possessed hazardous or flammable materials (light industrial zoning would likely preclude most firms using such risky substances).

2.314 Alternative #5. Since this development plan envisions a similar size and type of project to that of Alternative #3, the demand for fire district services is expected to be similar. Estimated additional service costs to the Novato Fire District, should it assume jurisdiction over the base, are $200,000 to $250,000 in annual operating costs and $125,000 in initial capital costs (in 1978 dollars). Access and emergency response time may be greater than for Alternative #2R, unless major access modifications are made or new fire district facilities are constructed. Since fire service is currently supplied by the U.S. Government, Hamilton Air Force Base fire protection responsibility would have to be assumed by either the County of Marin or the City of Novato. Full development of this alternative and other planned industrial uses on the base would require construction of a new fire station on the base. The foregoing cost figure does not include a new station.

2.315 Water Supply.

2.316 Alternative #1. No Change.

2.317 Alternative #2R. This service would be provided by the North Marin County Water District. The district's water supply comes from the following two sources: 20% from Stafford Lake and the remainder from the Russian River Aqueduct. Based upon data supplied by the proponent of this alternative, water consumption is expected to be as follows:

Irrigation	12.89 Acre Feet Per Year
Tenant Spaces	24.15 Acre Feet Per Year
Department Stores	14.32 Acre Feet Per Year
Total	51.36 Acre Feet Per Year (16,743,000 Gallons)

2.318 The above total is equivalent to the amount used by about 25 single family dwellings for one year. The district does not foresee any problems supplying this proposed project due to completion of the new Russian River Aqueduct, anticipated use of water from Warm Springs Dam beginning in 1985, and the current improved rainfall. In the event of failure to receive water from Warm Springs Dam and having to rely on current sources, the District has indicated that it would be difficult to supply the new development with sufficient water should drought conditions reoccur.

2.319 Alternative #3. Since this development plan would be smaller (53 acres vs. 69 acres for Alternative #2R) but the same type of development as Alternative #2R, it would consume less water (mainly due to reduced irrigation areas). Since this alternative would use less of the water district's resources and its capacity, more water would be available to future water consumers.

2.320 Alternative #4. The retail portion of this development plan would consume a similar amount of water as that of Alternative #3, given similar area and landscaping needs. The industrial portion of this plan would require similar amounts of water for landscaping, although less landscaping and pervious surface may result from this alternative. Human consumption of water may be greater in the industrial portion of this plan since people will be working at the site for longer periods than visiting shoppers. Little water consumption for industrial processing is expected due to the "clean" office/warehouse type uses allowed by the planned industrial zoning.

2.321 Alternative #5. Demand for water is expected to be about the same for this alternative as for Alternative #2R, given the same landscaping requirements and commerical uses. Water for Hamilton Air Force Base currently is supplied by the Marin Municipal Water District (MMWD). Potential supply is available from the North Marin Water District via an existing pipeline crosstie between the two systems. This is not currently being utilized. The MMWD may experience problems supplying a large commercial development at HAFB should drought conditions return. The current MMWD supply limit for the Hamiliton Air Force Base area through the year 2000 is 2,500 acre-feet, so in normal rainfall years little impact on local water supply is expected.

2.322 Gas/Electricity.

2.323 Alternative #1. No change.

2.324 Alternative #2R. The Pacific Gas and Electric Company would supply utility services to the project site. Annual consumption of gas and electricity for this alternative is estimated to be, respectively, 2.8×10^{11} BTU's and 2.1×10^{7} Kwh. In comparison, an average Bay Area single family dwelling consumes about 9×10^{7} BTU's of gas per year and about 6.5×10^{3} Kwh of electricity per year (Pace, 1979). Estimated annual consumption by this development plan would be equal to that used by about 3,200 single family units. Peak demand for electricity would occur during summer, as with residential dwellings. Most of this demand would be for air conditioning. Greatest consumption of natural gas would occur during winter, since gas provides heating of most structures, including residential and commerical.

2.325 Alternative #3. Compared with Alternative #2R, the same impacts are expected to be created by this development plan.

2.326 Alternative #4. The northern, retail portion of this development would consume similar amounts of energy as that of Alternative #3. The southern, industrial portion of this plan would possibly consume more energy depending upon the business firms which located on the site. Due to many separate structures versus one main clustered structure, heating and cooling losses would be greater resulting in greater energy consumption. Since all structures may not be for the same purpose or built at the same time to the same specifications, energy conservation measures cannot be as easily implemented or uniformly applied.

2.327 Alternative #5. Energy consumption by this development plan would be equivalent to that of Alternative #2R, given the same energy-saving technology and requirements.

2.328 Liquid Wastes.

2.329 Alternative #1. No change.

2.330 Alternative #2R. The Novato Sanitary District #6 would provide wastewater service for this development plan and for Alternatives #3, #4, and #5. The nearest treatment plant, which provides secondary treatment, is at the southeasterly end of Davidson Street in Novato, approximately 1/2 mile from the Hanna Ranch site. The nearest hookup point to the system is at Lamont Street and Franklin Avenue, approximately 2/3 mile from the project site. Current average dry-weather capacity for this facility is 2.5 mgd and average wet-weather flow is 18 mgd (mainly due to system infiltration). The Davidson Street facility is currently not meeting state and federal effluent discharge requirements and has been given a compliance timetable by the Regional Water Quality Control Board. Until improvements in treatment level and capacity are completed (expected completion in 1981) Novato Sanitary District #6 has limited growth capacity of 500 new residential dwelling unit sewage connections per year. Alternative #2R is expected to generate about 12.7 MGY (0.034 MGD) of wasterwater. This amount would be about 1.3% of the current dry-weather flow to the Davidson Street facility, and would consume about 22% of the current yearly available sewage reserve capacity. Therefore provided that treatment facility improvements are made on schedule and are certified by the RWQCB, development of this or the other alternatives would have a relatively minor impact of system reserve capacity and on the water quality of effluent receiving waters.

2.331 Alternative #3. Same as Alternative #2R.

2.331 Alternative #4. Wastewater generated by the retail portion of this plan would be similar in content and volume to that of Alternative #3. Wastewater generated by the southern, industrial portion of this plan would be basically similar in content as the northern portion, although industrial wastes may also be present. The volume is unknown due to the lack of specific development plans.

2.333 Alternative #5. Wastewater generated by this plan would be equivalent in volume and content to that of Alternative #2R. Sewage service is currently provided to the site by an on-site treatment plant and partially by connection to the Novato Sanitary District. Due to increased anticipated volume and the poor condition of existing treatment equipment, a new force main connecting the site with the Novato Sanitary District would be required. The same constraints on the Novato Sanitary District #6, as discussed under Alternative #2R, would apply in this case as with the other development alternatives.

2.334 Solid Wastes.

2.335 Alternative #1. No change.

2.336 Alternative #2R. This alternative is expected to generate about 5 tons per day of solid wastes, one-third of which is recyclable according to the proponent of this alternative. The nearest disposal site for these solid

wastes is the Redwood Sanitary Landfill operation located on U.S. 101 north of Novato. The expected solid wastes generated by this plan would only be about 0.0036% of the current total annual wastes received by Redwood Sanitary Landfill. This alternative would not have a significant effect upon the area's landfill operation.

2.337 Alternative #3. The type and content of the generated solid wastes would be the same as that for Alternative #2R, mainly plastic, wood, metal, and cardboard packaging materials, some possible food wastes and miscellaneous personal items (candy and sundry packaging, tobacco products and the like).

2.338 Alternative #4. The commercial portion of this plan would generate similar amounts and types of solid wastes as that of Alternative #3. The industrial portion would likely generate some of the same, plus discarded industrial supplies and packing materials. Toxic substances would have to be separated from the rest of the solid wastes and disposed of independently at authorized locations.

2.339 Alternative #5. Development of an equivalent (to Alternative #2R) shopping center at Hamilton AFB would produce approximately the same amount and type of solid wastes as that of Alternative #2R. Material recovery and recycling could reduce the volume of wastes requiring disposal and could also reduce energy usage and consumption of raw materials. For example, many retail and some industrial operations are now crushing and recycling cardboard packaging material, these materials likely being the major constituent of the solid wastes produced by both the retail and industrial portions of this alternative. Regardless of recycling efforts (which is ecologically and economically sound) relatively little impact would occur to local landfill operations, as the solid wastes generated would be volumetrically small and relatively nontoxic.

2.340 Public Works.

2.341 Alternative #1. No change.

2.342 Alternatives #2R-5. Selection of Alternatives #2R, #4, and #5 would require the greatest expenditure of public works maintenance funds to maintain city streets, utilities, and traffic control devices, since these three plans encompass the largest areas. Alternative #4, with its industrial portion, may contain a greater amount of interior surface streets to provide access to the different industrial tenants. This would increase relative public costs compared with Alternatives #2R, #3 and #5. In the case of Alternatives #2R, #3 and #5 much of the site would be privately owned with maintenance of parking lots and streets being the owner's responsibility. The result would be less area of responsibility for public entities. Any road network or parking area, as well as utility lines (above and underground) constructed on fill over Bay mud is likely to require additional unknown maintenance costs due to differential settlement. Examples of this situation are evident on many major roads around the Bay area, including the Bayshore Freeway (U.S. 101) and the eastern approach road to the Bay Bridge. Some consideration should be given to these anticipated additional maintenance costs in determining the economic effects of these proposed development plans upon the local government finance. Basic

public works functions and costs are: street maintenance - $1500/mile, street sweeping - $240/mile, and street lighting - $100/light/year. Based on preliminary engineering studies, development of Alternative #5 would require the greatest amount of road improvements in terms of the amount of construction and the dollar cost.

2.343 VISUAL QUALITY

2.344 Present Conditions.

2.345 Alternatives #1-4. The study area is located on the western edge of a broad grassy plain that was historically a tidal area of San Pablo Bay. To the north, west, and south are rolling hills covered with residences and some oak woodland. The area east of the project site is open space, some of which is used for forage production. Downtown Novato is not visible from the study area due to the gently rolling terrain.

2.346 The major part of the study area is flat and has been used for hay production in the past. Two large hills covered by oak woodland are at the extreme southern end of the property. The project area is quite visable from the surrounding hills, from the major highways (U. S. 101 and State Route 37), and from the elevated Rowland Avenue interchange.

2.347 State Route 37 is included in the State Master plan for scenic highways, but it has not been officially designated as a scenic highway by the State Legislature. According to the General Plan for the City of Novato the City shall work out a planning program with the State to preserve the scenic resources viewed from the highway. Until the State's study is completed, the City shall refer any public or private development proposals which would be visible from Route 37 to the State Division of Highways for scenic review and recommendation.

2.348 Alternative #5. The area around Hamilton is primarily open space. The areas immediately north and south of the base have a bucolic aspect with grazing and limited cropland uses. Most of the upland areas of the base have been developed. The proposed shopping center site contains a few buildings and ammunition storage structures. The site is partially hidden from Highway 101 by a rock outcropping. To the north and east of the site are two large hills which have not been developed.

2.349 Impacts.

2.350 Alternative #1. No change.

2.351 Alternative #2R. Because the project site is extremely open to view from the surrounding highways, the shopping center complex would be important in defining the visual characater of the area. The proposed project would eliminate the open space and freshwater marsh east of Highway 101. Construction of the project would visually reinforce expanding strip commercial development prevalent along U.S. 101 in San Rafael and form an extension to the development pattern established by adjoining communities. Those familiar with the form and structure of Novato, and its residential and commercial areas, would sense a strong fracturing and decentralizing of the downtown area. The project would consist of a rectangular building cluster measuring about 2,100 feet by 550 feet. Open air parking for 4,950 cars would surround the shopping center. The buildings would define a linear north - south axis. Ancillary buildings, the movie theater, restaurant and banks, would be at the northeastern end of the site and appear functionally isolated from the shopping

center. The overall visual effect of the buildings and parking areas would not be unlike that of other suburban shopping centers throughout the Bay Area. The proposed project would not incorporate within its site either Novato Creek or the proposed lake. The inward orientation of the mall would preclude views of these features and the hillsides bevond.

2.352 Visual screening of the parking areas from U.S. 101 and Route 37 has not been provided. Reflections of the sun from automobile surfaces, and reflected area lighting from the pavement at night (especially when wet) would be an adverse visual impact to travelers on the highways and to nearby area residents. Views of the large parking areas from the hillsides would create a negative impact.

2.353 Alternative #3. This alternative would commit less of the open space to development and the slough area would remain. The transition from the open space to development would be less abrupt than for Alternative #2R.

2.354 Alternative #4. The impacts of this alternative are assumed to be similar to Alternative #2R although specific development plans for this alternative have not been made.

2.355 Alternative #5. This alternative would increase the urban aspect of the upland portion of the base. As the site is partically hidden from Highway 101 the visual impact from the roadway would be less than for Alternatives #1-4. Specific site plans for the shopping center have not been proposed.

2.356 Mitigation.

2.357 Alternatives #2R-4. A transition between developed areas to the west and open lands to the east would be visually more effective if the development pattern were intensive and less rigid in its form. Open space within the project would relieve the expansive parking areas proposed and blend building structures to the landscape. The incorporation of a water feature into the plan would emphasize open space, add visual interest, and relate the project to Scottsdale Pond on the west side of U.S. 101.

2.358 CULTURAL RESOURCES

2.359 Present Conditions.

2.360 Alternatives #1-4. In compliance with Section 106 of the National Historic Preservation Act of 1966 (16 U. S. C. 470(f)) the most recent listing of the National Register of Historic Places (Federal Register 18 March 1980 with monthly supplements through June 1980) has been consulted and determination has been made that no National Register property nor property eligible for inclusion therein is affected by the project.

2.361 The study area south of Lynwood Slough has been surveyed by Mick Hayes of the Anthropology Laboratory at Sonoma State University. The survey found no evidence of historic or archaeological resources on the site. One archaeological site (Mrn-319) had been recorded situated on a knoll within the project boundaries, however it was not rediscovered during the course of the survey. Apparently, it had been destroyed during construction of Highway 101 since no trace of it was found on either of the intact knolls.

2.362 Alternative #5. The latest listing of the National Register has also been consulted for this alternative and a determination has been made that no National Register property nor property eligible for inclusion will be affected by the project. The study area has been surveyed by Archeological Research and Consulting Services (ARCS) for cultural and historic resources. None were found in the project vicinity. A 1909 survey by N. C. Nelson reported site Mrn-160, a "shell mound" in the project vicinity. Major earth movement has occurred in this area, and the ARCS survey was unable to locate any evidence of the site, or of any others nearby. The State Office of Historic Preservation has determined that there are no properties on or eligible for the National Register of Historic Places within the area of potential environmental impact and that the requirements of the National Historic Preservation Act of 1966 and CFR 800 have been met.

2.363 Impacts.

2.364 Alternative #1. No change.

2.365 Alternatives #2R-5. The alternatives would not impact any known cultural resources. Previously unknown historical or archaeological resources may be uncovered during construction.

2.366 Mitigation - Alternatives #2R-5. If archaelogical or historic resources are uncovered during construction, work should be stopped to permit professional evaluation of the find.

2.367 RECREATION

2.368 Present Conditions.

2.369 Alternatives #1-4. At present, there are no recreational facilities on the study site. The site is fenced, limiting public access. Novato Creek which forms the northern boundary of the site has been designated by the Novato General Plan as a part of a linear open space system. The Recreation Element of the plan indicates the possibility of creating horse trails and bike paths along Novato Creek and adjacent areas.

2.370 Alternative #5. The study area includes a large playing field which is not accessable to non-military personnel. The study area does not include any other recreational facilities although other sites within Hamilton Air Force Base are being considered for future recreational use by the City of Novato Parks and Recreation Department.

2.371 Impacts.

2.372 Alternative #1. This alternative would leave the project site available for future recreation uses.

2.373 Alternative #2R. The proposed site plan (Plate 3) indicates that a movie theater and ice rink would be provided as a part of the shopping complex. There is no provision for recreational facilities that are not directly associated with the project. Bicycle paths and pedestrain walkways have not been indicated.

2.374 As the proposed project is not expected to increase the population on or in the vicinity of the study site, it is not expected that the project will increase the need for recreational facilities in Novato.

2.375 Alternative #3. Same as Alternative #2R except that the area south of Lywood Slough would be available for future recreational use.

2.376 Alternative #4. Same as Alternative #2R.

2.377 Alternative #5. The existing playing field would be destroyed. No recreational facilities would be provided by this alternative. Development of this alternative may restrict use of other nearby facilities.

2.378 Mitigation - Alternatives #1-5. Provision of open space and areas for passive recreation within the shopping center, possibly incorporating and enhancing existing natural features such as the old Lynwood Slough and oak knoll on the Hanna Ranch site.

2.379 COMMUNITY COHESION

2.380 Present Conditions.

2.381 Alternatives #1-5. Novato residents have expressed a desire to have a regional shopping center in the city. For comparision shopping, residents currently must travel to either the Northgate Shopping Center 8 miles to the south, or to Santa Rosa 25 miles to the north. The Novato City Council has voted unanimously to recommend to the Corps that a permit be granted for the proposed Novato Center complex (Alternative #2R).

2.382 The City of Novato has a semi-rural character with large expanses of open space within the city limits. The city has experienced rapid growth for the last 20 years. As a result, there is a serious public concern over continued growth and preservation of the remaining open space. To reduce growth, the City Council has recently enacted a mortatorium on construction of new multi-unit (over four units) dwellings and limited, to 500 per year the number of new individual residential units. Commercial growth is encouraged.

2.383 Impacts.

2.384 Alternative #1. This alternative would not involve development of the study area. However, the surrounding open areas to the south and west are likely to be developed in the future in accordance with the Novato general plan. Surrounding development may make the preservation of open space more important to area residents.

2.385 Alternative #2R. This alternative would provide a regional shopping center in Novato. Community members would benefit from this alternative by the reduced traveling time on shopping trips and greater selection of goods and services.

2.386 Those familiar with Novato may sense a decentralization of the downtown area. Some concern has been expressed by downtown merchants that sales volume downtown will decrease.

2.387 This location would probably be preferred by Novato residents for a regional shopping center over the Hamilton site (Alternative #5) because: (1) it could be completed sooner, assuming no major objections and (2) it would probably involve less activity on city streets. However, community members may have negative feelings about the size, visibility and growth inducing potential of the proposed project.

2.388 The Corps has received comments from the Marin Audubon Society and the Save San Francisco Bay Association opposing filling of the old Lynwood Slough because of the loss of wildlife habitat involved. These comments represent the feelings of some of the local community.

2.389 Alternative #3. This alternative would provide a regional shopping center for area residents. This alternative would impact less on open space and the wildlife habitat along old Lynwood Slough would be preserved.

2.390 Alternative #4. This alternative would also provide regional shopping center. The impact upon open space would be the same as Alternative #2R.

2.391 Alternative #5. This alternative would also contribute to the decentralization of the commercial district. As this site is not as visible from Highway 101, and is somewhat removed from the center of Novato, the impact upon community atmosphere would be reduced.

IMPACTS*	ALTERNATIVES 1	2R	3	4	5
Potential damage to structures, utility lines and sewers from differential settlement and seismic hazards associated with construction on Bay Mud		X	X	X	X
Increased frequency and stage of flooding off-site		X		X	X
Increased quantity and decreased quality of storm runoff		X	X	X	X
Decreased value of vegetation and wildlife habitat				X	
Increased air pollutant emissions from traffic generated by the project		X	X	X	X
Increased traffic congestion		X	X	X	X
Increased demands and costs for community services		X	X	X	X
Economic impact on downtown Novato commercial area		X	X	X	X
Increased consumption of water supplies, energy and demand for wastewater treatement		X	X	X	X

* "X" Denotes an impact for that alternative.

4.00 THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE OF LONG-TERM PRODUCTIVITY

IMPACTS*	ALTERNATIVES				
	1	2R	3	4	5
Loss of wetland habitat resulting in decreased biological productivity				X	
Creation of marsh		X			
Loss of upland habitat decreasing biological productivity		X	X	X	X
Development in the flood plain decreasing ponding capacity and increasing the flood hazard off site		X	X	X	X

* "X" Denotes an impact for that alternative.

5.00 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED*

COMMITMENT OF RESOURCES	ALTERNATIVES				
	1	2R	3	4	5
Conversion of basically open space to urban use		X	X	X	X
Use of building materials and energy during project construction		X	X	X	X
Consumption of energy, water, and services during project operation		X	X	X	X
Destruction of eight acres of brackish marsh				X	
Permanent alternation in the apperance of the project site		X	X	X	X
Degradation of local air and water quality during project construction and operation		X	X	X	X

* "X" Denotes an impact for that alternative.

6.00 COORDINATION

6.01 Public Participation. The application for a Department of the Army permit by Richard Hanna (Alternative #2) was first announced by the Corps in a Public Notice No. 10138-33 on 27 January 1978. In accordance with Department of the Army regulations, comments were solicited on the Public Notice from the general public and specific Federal and State agencies. A Notice of Intent to prepare a Draft EIS was published in the Federal Register 8 May 1979. The Draft EIS was released to the public on 25 July 1979.

6.02 Government Agencies. Comments on the Public Notice were received from the U.S Department of the Interior, U.S. Department of Commerce, the U.S. Environmental Protection Agency and the Resources Agency of California. The comments are summarized here. The U.S. Department of commerce and the Environmental Protection Agency withheld comments pending the publication of the Draft Environmental Impact Statement. The Resources Agency of California had no objection to the issuance of the permit. The United States Department of the Interior objected to the issuance of the permit because the proposed activity is not dependent upon a wetland location.

6.03 Comments on the Public Notice were also received from the following agencies:

. The San Francisco Bay Conservation and Development Commission determined that they have no jurisdiction over the proposed project.

. The State Department of Parks and Recreation commented that no properties currently included in the State and National Registers for Archeology and Historic Landmarks would be affected by the proposed project.

. the Marin/Sonoma Mosquito Abatement District offered recommendations for design of the proposed lake to prevent mosquito breeding.

. The Marin County Department of Public Works commented that all development should be elevated abouve the 100-year flood plain of Novato Creek.

. The City of Novato commented that the city has granted a use permit for the proposed fill within the Corps' jurisdiction.

6.04 Citizen Groups and Individuals. Comments on Public Notice 10138-33 were received from the Marin Audubon Society and Save San Francisco Bay Association. Both of these organizations objected to destruction of the wetlands on the project site. Also, in commenting on PN 10138-33 the Northwestern Pacific Railroad questioned the location of the railroad ditch shown on the drawings and requested the applicant contact their office. In a subsequent letter the Northwestern Pacific Railroad stated the applicant had been in contact and that all questions were resolved.

6.05 Draft Environmental Statement - Comments and Responses. The Draft ES was mailed to those agencies and individuals listed in paragraph 6.12. Those agencies and individuals marked by an asterisk commented on the DES. In general, the comments focused on the following maior issues:

a. Lack of need for the project (Alternative #2) to be located in a wetland area, and concern for the loss of fish and wildlife habitat caused by filling of the wetland.

b. Traffic and circulation impacts.

c. Hydrological impacts of the project on nearby properties and upon U.S. Highway 101.

Complete copies of the comment letters and responses are in Appendix F.

6.06 In response to these comments the applicant modified the proposed project (Alternative #2R). This Final ES presents the impacts of the revised project. The major revisions are described below:

6.07 Fish and Wildlife Habitat. The applicant has proposed to fill only a portion of the existing slough and to create a larger wetland on the southern portion of the project site. The location of the new wetland is indicated on Plate 3. In the new plan, 4.07 acres of the existing 8.93-acre slough would be filled. An additional 6.8 acres of historical marsh would be excavated adjacent to the 4.9-acre remnant of the old slough, to create new marsh. Water for this wetland would be supplied by the runoff from the uplands west of Higway 101 through the two existing culverts under the Highway and by a culvert through the roadway fill to Cheda Creek. A weir would be placed at this culvert to allow retention of approximately 4 feet of water in the marsh.

6.08 In addition, the applicant has proposed mitigation measures to improve the fish and wildlife habitat value of the State-owned property east of the railroad tracks. Those measures are described in detail in Document B-6, Appendix B.

6.09 Water Dependency. The revised project (Alternative #2R) reduced the wetland area to be filled from approximately 9 acres to approximately 4 acres. In evaluating the proposed alteration of wetlands, consideration must be given to whether the activity is primarily dependent on being located in, or in close proximity to the aquatic environment and whether feasible alternative sites are available. The availability of feasible alternative sites for this proposed activity has been considered in this FES (Section 1).

6.10 Traffic and Circulation. In response to comments on the proposed activity from the U.S. Department of Transportation and the California Department of Transportation, the proposed freeway on and off ramps have been revised and the proposed surface streets serving the shopping center have been realigned. A standard partial cloverleaf interchange with loop on ramps in the northwest and southeast quadrants is now proposed (see Plate 3). The two ramps can be added to the interchange without changing the exsiting ramp significantly. Rowland Boulevard will be extended south and east of its current terminus to form the eastern boundary of the shopping center and to connect to Hanna Ranch Road.

6.11 Hydrological Impacts. The California Department of Transportation expressed concern that the presence of fill in the floodplain would increase the stage and frequency of flooding to the Highway and surrounding properties. The proposal as currently designed will displace 360 acre-feet of ponding capacity at elevation 7 feet mean sea level. This is approximately 10% of the ponding capacity of the entire Hanna Ranch site (the project site and the State-owned parcel east of the railroad). Specific hydrological impacts are discussed further in the text and in responses to CALTRANS comments (Appendix F, document F-11).

6.12 Comments Requested. Copies of the Draft Environmental Impact Statement were furnished to the following:

a. U.S. Senators

Alan Cranston
S.I. Hayakawa

b. U.S. Representative

John Burton

c. State Senator

Barry Keene

d. State Assemblyman

William Filante

e. Federal Agencies

Advisory Council on Historic Preservation
Department of Agriculture
  Western Technical Services Center
  Soil Conservation Service
* Forest Service
Department of Commerce
  Secretary for Environmental Affairs
* National Oceanic and Atmospheric Administration

Department of Energy
Department of Health, Education and Welfare
Department of Housing and Urban Development
* Department of the Interior
  Heritage Conservation and Recreation Service
  Office of Environmental Project Review
  Fish and Wildlife Service
  Geological Survey
* Department of Transportation
  Coast Guard
  Federal Highway Administration
* Environmental Protection Agency
Government Services Administration

* Commented on the Draft ES

f. State Agencies

Business and Transportation Agency of California
Division of Highways
* CALTRANS

Health and Welfare Agency of California
Bureau of Sanitary Engineering
Vector and Waste Management Section
Environmental Health Services Section
Native American Heritage Commission
Office of Planning and Research

* Resources Agency
Secretary for Resources
Air Resources Board
* Department of Conservation
* Department of Fish and Game
Department of Boating and Waterways Development
Department of Parks and Recreation
Department of Water Resources
State Reclamation Board
* Regional Water Quality Control Board
San Francisco Bay Area Conservation and Development Commission
Solid Waste Management Board
State Historical Preservation Officer
State Lands Commission
State Water Resources Control Board

g. Regional Agencies

* Association of Bay Area Governments
Bay Area Air Quality Management District
Bay Area Sewage Services Agency
Metropolitan Transportation Commission

h. County Agencies

Marin-Sonoma Mosquito Abatement District
Marin County Planning Department
Marin County Public Works Department

i. City Agencies

Mayor of Navato
Novato Planning Department

* Commented on the Draft ES

j. Libraries

Marin County Library
Civic Center Branch
Novato Branch

k. Educational Institutions

Colorado State University
Environmental Design Librarian - University of California
Water Resources Center Archives - University of California
College of Marin

l. Chamber of Commerce

California Chamber of Commerce

m. Organization and Service Groups

League of California Cities

n. Conservation Groups

California Institure of Man in Nature
California Tomorrow
California Waterfowl Association
California Wildlife Federation
San Francisco Ecology Center
Environmental Defense Fund
ENVIRPYEST
Friends of the Earth
Institute for the Human Environment
Izak Walton League of America, Inc.
Marin Conservation League
Natural Parks and Conservation Association
Natural Resources Defense Council
The Nature Conservancy
Oceanic Society
Planning and Conservation League
Save San Francisco Bay Association
San Francisco Bay Planning and Urban Renewal Associatcn
SCOPE
Society for California Archeology
Audubon Society
Golden Gate Chapter
* Marin Chapter
Western Regional Office

* Commented on the Draft ES

Sierra Club
San Francisco Bay Chapter

Associated Sportsmen of California
California Trout
Trout Unlimited
California Marine Affairs and Navigation Conference

o. Others

* Mr. Tom Corneto
Easly and Brassey Corporation
Bay Land Area Study Team
Ms. Carol Peltz
Mr. Harry Silcocks
J. D. Moulding
* Ernest Hahn, Inc.
* Murry-McCormick, Inc.

* Commented on the Draft ES

6.13 Local Authorization. An amendment to the General Plan has been approved by the City of Novato for the proposed project. To date, a master plan for the project has not been submitted to the city. Federal regulations state that, "Where the required Federal, State and/or local certification and/or authorizaton has been denied, the application for a Department of the Army permit will be denied without prejudice to the right of the applicant to reinstate processing of his application if subsequent approval is recieved ...(33 CFR 320.4(j)(i)(1977)." Master plan approval by the city of Novato will indicate local authorization for the project.

REFERENCES

Association of Bay Area Governments, Regional Plan 1970:1990, Berkeley, CA, July 1970

Bay Area Pollution Control District, Guidelines for Air Quality Impact Analysis of Projects, San Francisco, CA, June 1975.

Bingham, Jeffery, Office of Historic Preservation, personal communication.

Blake, M.C. Jr., et. al., Preliminary Geologic Map of Marin and San Francisco Counties, California and Parts of Alameda, Contra Costa and Sonoma Counties, California, U.S. Geological Survey, Misc. Field Study Map MF-574, 1974.

Crews, Tom, Project Manager, Environmental Impact Planning Corp., personal communication.

Department of the Army, "Type 16 Flood Insurance Study: Tsunami Predictions for Monterey and San Francisco Bays and Puget Sound," Vicksburg, Mississippi, Technical Report H-75-17, 1975.

Dietrich, William, Traffic Engineer, DeLeuw, Cather and Company, personal communication.

Environmental Impact Planning Corporation, Final Environmental Impact Report, Novato Regional Shopping Center, City of Novato, California, September 1979.

Evans, Paul, Pacific, Gas & Electric Co., personal communication.

Goldman, H. B., Geological and Engineering Aspects of San Francisco Bay Fill, California Division of Mines and Geology, Special Report 97, 1969.

General Services Administration, Memorandum of Decision, Disposal and Use of Federal Property at Hamilton AFB, Novato, California, 24 June 1980.

Hansen, Gary, Pacific Gas & Electric Co., personal communication.

Harris, Richard R.; Elloit, Michael,; Favede, Francoise, Levine Caval, Nuez-Hoke, Glenn, An Environmental Assessment of Hamilton Air Force Base, June 1976.

Harvey & Stanley Associates, Inc., Technical Report on Vegetation and Wildlife, December 1978.

Hastings, Keith,; Consulting Engineer, Murray-McCormick, Inc., personal communication.

Jennings, Charles W., Fault Map of California with Locations of Volcanoes, Thermal Springs, and Thermal Wells, California Division of Mines and Geology, 1:750,000, 1975.

Jennings, Charles W., Geologic Map of California, 1:750,000, Complier, 1977.

Jennings, Charles W., and John L. Burnett, Geologic Map of California, Olaf P. Jenkins Edition, San Francisco Sheet, California Division of Mines and Geology, 1:250,000, 1961.

Keyser Marston Associates, Inc., Population and Economics Setting of the Proposed Novato Regional Shopping Center, City of Novato, February 1979.

Keyer Marston Associates, Inc., Population and Economic Impact of the Proposed Novato Regional Shopping Center, City of Novato, February 1979.

Koening, James B., Geologic Map of California, Olaf P. Jenkins Edition, Santa Rosa Sheet, California Division of Mines and Geology, 1:250,000, 1963.

Little, Arthur D., Inc., Draft Environmental Impact Statement on Disposition and Use of Federal Surplus Property on Hamilton Air Force Base, Novato, February 1979.

Marin County Planning Department, Marin Countywide Plan, 1973.

Marin County Planning Department, Novato Area General Plan, City of Novato, California, October 1967.

Mattson, Brian, Novato Planning Department, personal communication.

May, Mike, Real Estate Division, General Services Administration, personal communication.

Mishek, Dennis, California Regional Water Quality Control Board, San Francisco Region, personal communication.

Novato Planning Department, Hanna Ranch Master Plan, Environmental Impact Report, 1974.

Novato Planning Department, Novato General Plan, December 1978.

Ours, Jake, Real Estate Division, General Services Administration, personal communication.

Pace, Brian, Pacific, Gas & Electric Co., personal communication.

Page, Gary W. and Lynne E. Stenzel, Wildlife of the Hanna Ranch Ponds, Novato, Report to Ernest W. Hann, Incoporated, June 1979.

Rial, Norm, California Regional Water Quality Control Board, San Francisco Region, personal communication.

Rice, S. J., Geology and Geologic Hazards of the Novato Area, Marin County, California, California Division of Mines and Geology, Preliminary Report 21, 1973.

Royston Hanamoto Beck and Abey, Novato Creek Study, Marin County Flood Control and Water Conservation District, California, June 1972.

San Francisco Bay Conservation and Development Commission, San Francisco Bay Plan, San Francisco, California, January 1969.

Stompe, Susan, Marin Conservation League, personal communication.

Swanson, James, Fish & Wildlife Biologist, California Department of Fish & Game, personal communication.

Teiger, Joseph, Fish & Wildlife Biologist, U.S. Fish & Wildlife Service, personal communication.

University of California Environmental Study Group in Conjunction with the Marin County Division of Environmental Services, An Environmental Assessment of Hamilton Air Force Base, June 1979.

U.S. Army, Final Environmental Statement, Bel Marin Keys Unit IV-Ignacio Industrial Park Unit 3, Marin County, California, April 1979.

U.S. Army, Working Paper Flood Control Novato Creek and Tributaries, Marin County, California, U.S. Army Engineer District, San Francisco, California, October 1973.

U.S. Department of Housing and Urban Development, HUD, Noise Assessment Guidelines, Washington, D.C., August 1971.

U.S. General Services Administration, Draft Environmental Impact Statement on Disposition and Use of Federal Surplus Property at Hamilton Air Force Base, Novato, California, GSA, San Francisco, California, April 1979.

Williams, Philip, P.E., Consultant in Hydrology, personal communication.

LIST OF PREPARERS

The following people were primarily responsible for preparing this Environmental Impact Statement:

NAME	Expertise	Experience	Position Title
Tedd Coffman	Geology	18 years, Engineering Geology, S.F. District Corps of Engineers	Geologist
Rod Chisholm	Environmental Planning	10 years, Environmental Branch, S.F. District, Corps of Engineers	Supervisory Environmental Resources Planner
Roger Golden	Economics	2 years, Permit Impact Assessment Section Environmental Branch, S.F. District, Corps of Engineers	Environmental Protection Specialist
Paul Portch	Geography	2 years Permit Impact Assessment Section, Environmental Branch, S.F. District, Corps of Engineers	Environmental Protection Specialist
Dana Roxon	Hydraulic Engineering	10 years with S.F. District, Corps of Engineers; 9 years with Hydrology & Hydraulics Section	Hydraulic Engineer
Jody Zaitlin	Biology	2 years, Permit Impact Assessment Section, Environmental Branch, S.F. District, Corps of Engineers	Environmental Protection Specialist

PLATES

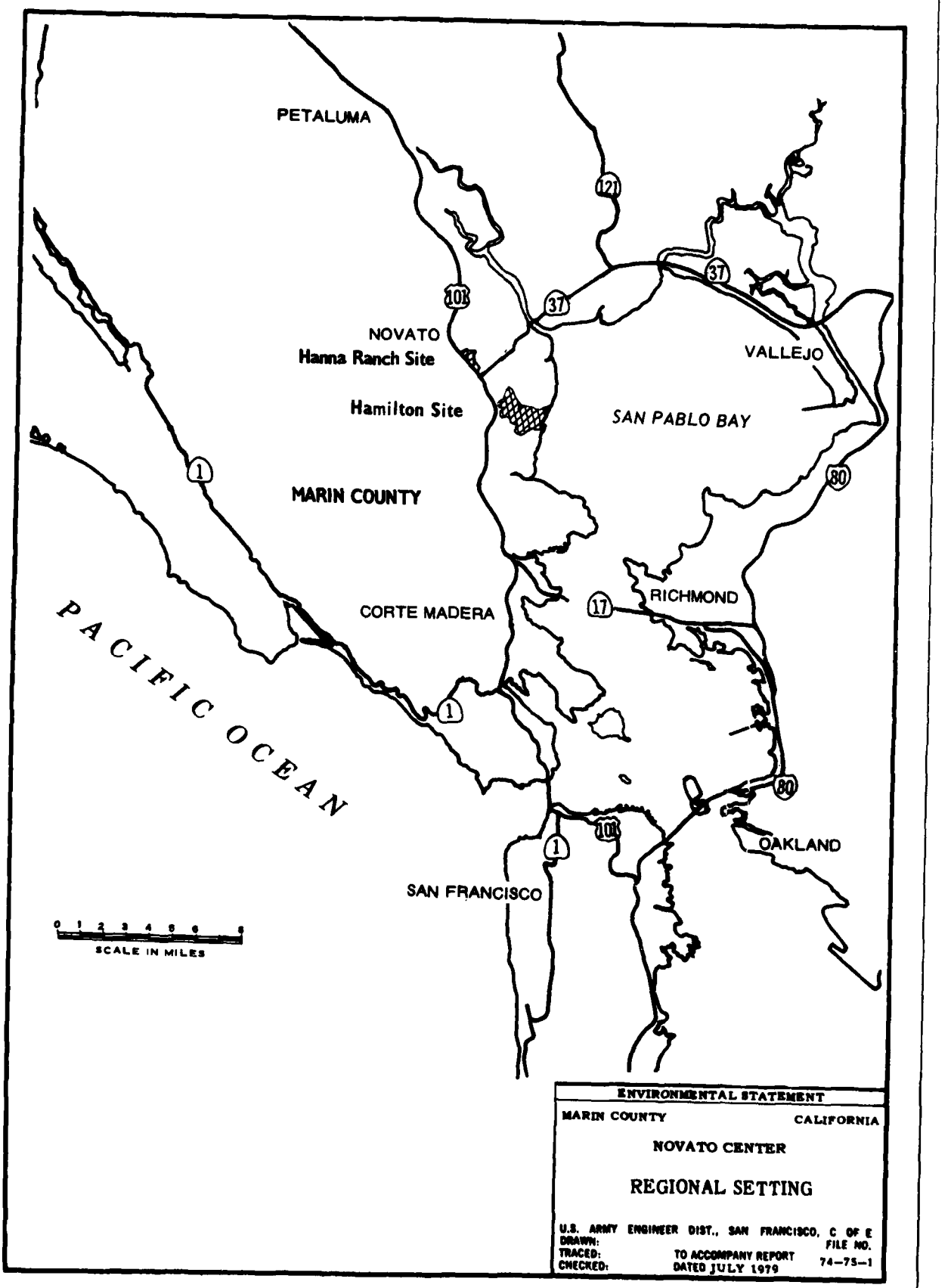
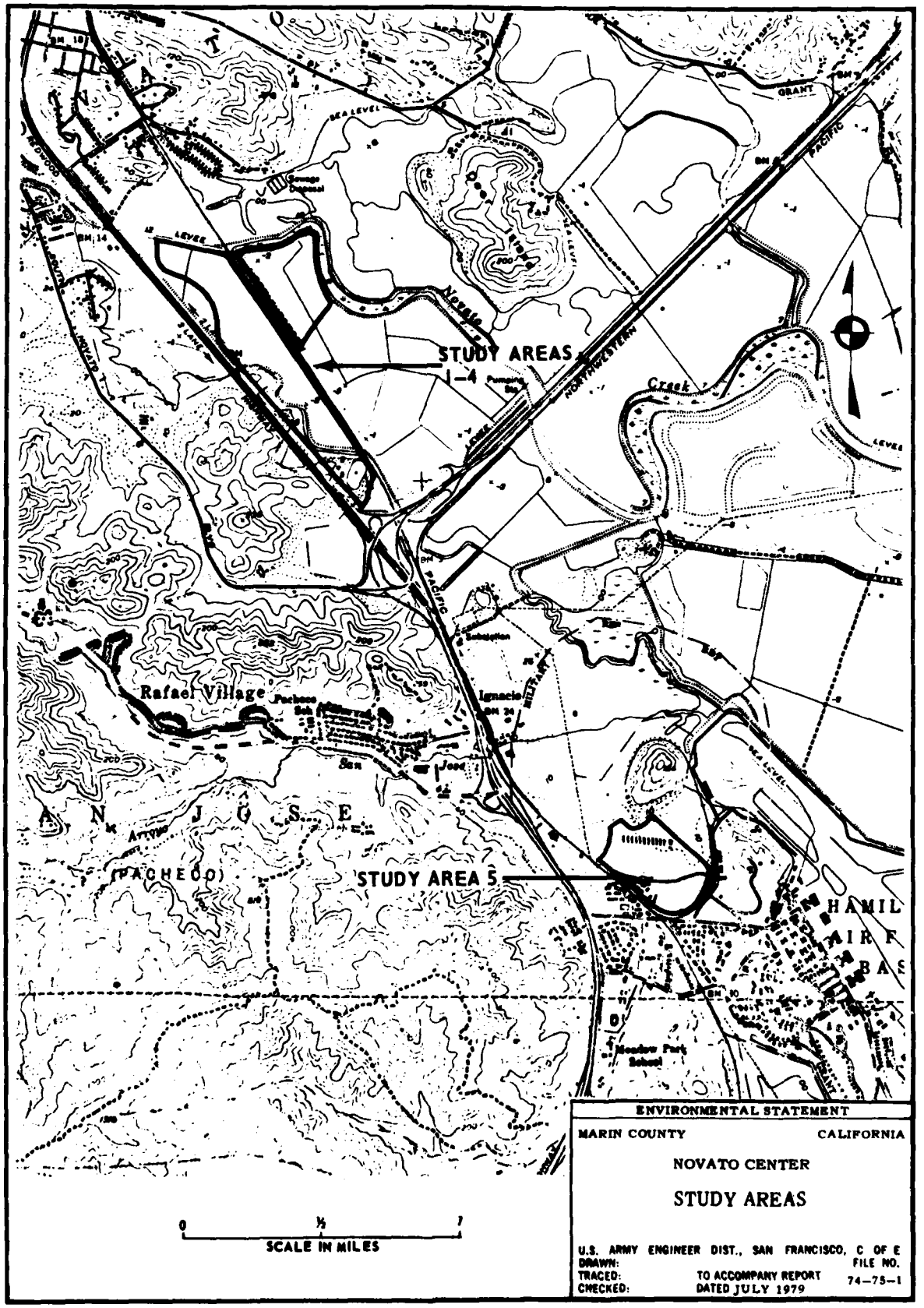

PETALUMA
NOVATO
Hanna Ranch Site
Hamilton Site
MARIN COUNTY
CORTE MADERA
PACIFIC OCEAN
SAN FRANCISCO
SAN PABLO BAY
VALLEJO
RICHMOND
OAKLAND
121
37
101
1
80
17
0 1 2 3 4 5 6 7 8
SCALE IN MILES
ENVIRONMENTAL STATEMENT
MARIN COUNTY CALIFORNIA
NOVATO CENTER
REGIONAL SETTING
U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E
DRAWN:
TRACED:
CHECKED:
TO ACCOMPANY REPORT
DATED JULY 1979
FILE NO.
74-75-1

PLATE 1



ENVIRONMENTAL STATEMENT

MARIN COUNTY CALIFORNIA

NOVATO CENTER

STUDY AREAS

U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E

DRAWN:
TRACED:
CHECKED:

TO ACCOMPANY REPORT
DATED JULY 1979

FILE NO. 74–75–1

PLATE 2

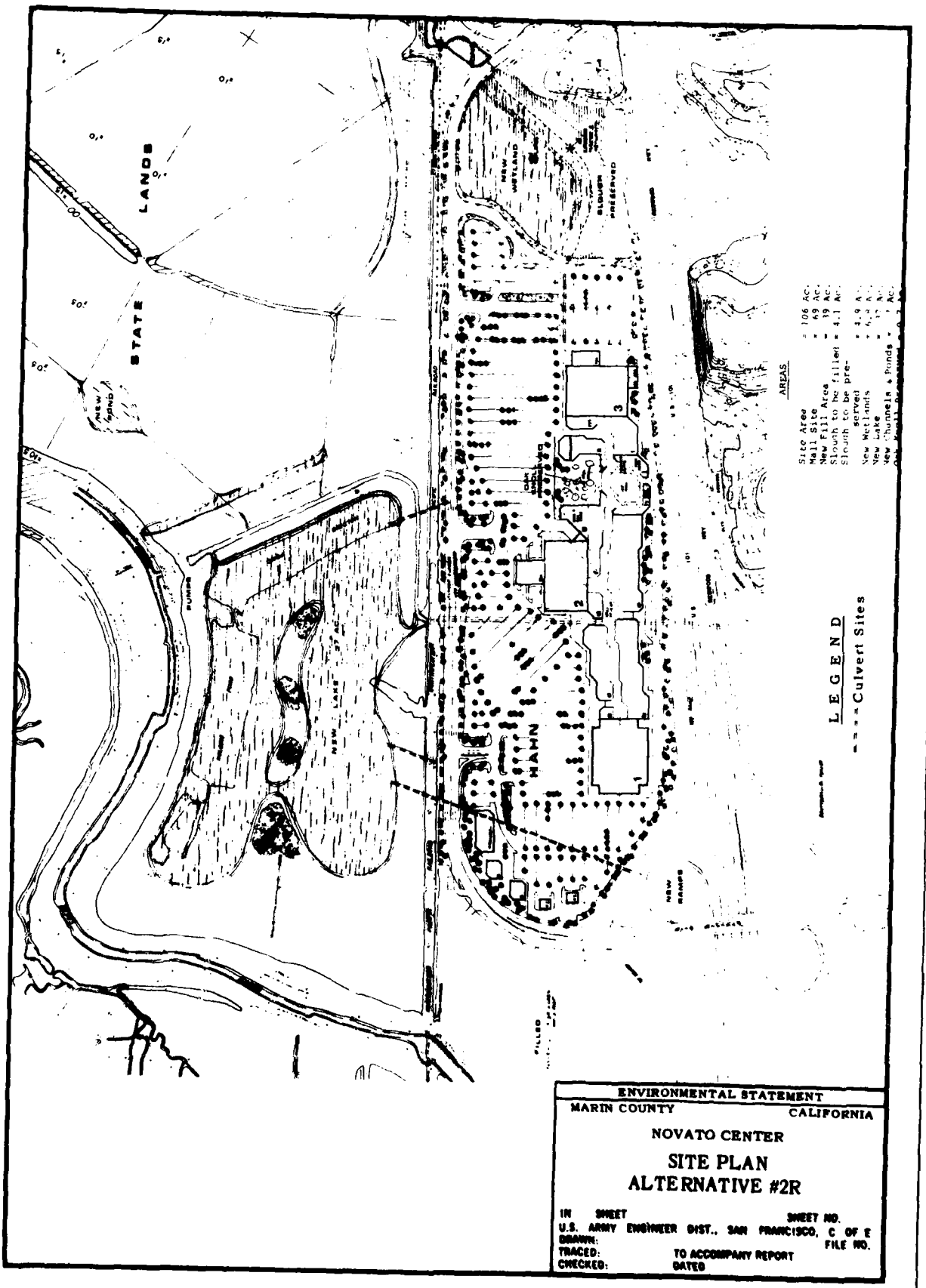
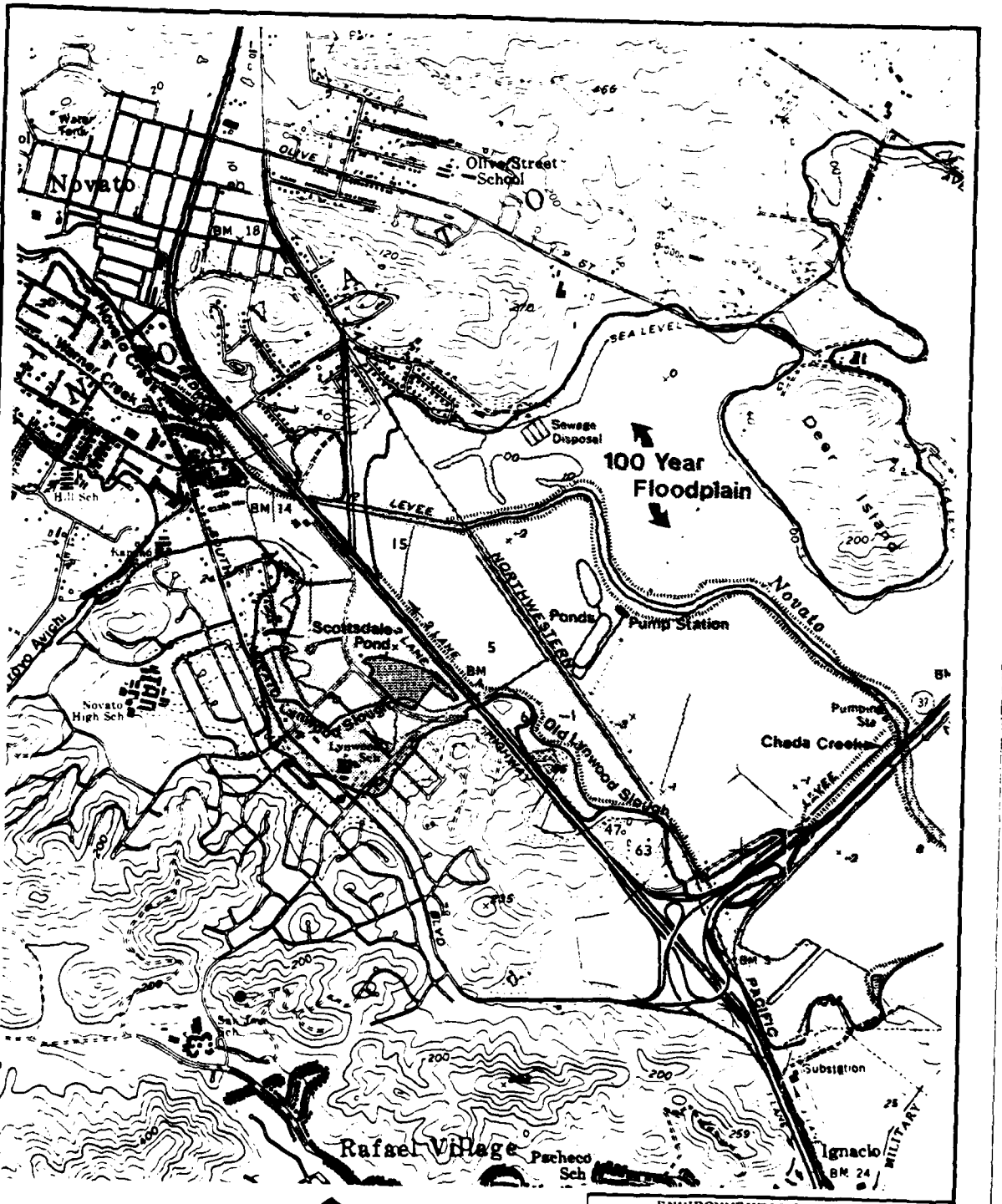

STATE LANDS
HAHN
LEGEND
Culvert Sites
AREAS
Site Area = 106 Ac.
Mall Site = 69 Ac.
New Fill Area = 19 Ac.
Slough to be filled = 4.1 Ac.
Slough to be preserved = 4.9 Ac.
New Wetlands = 4.4 Ac.
New Lake = 11 Ac.
New Channels & Ponds = 1 Ac.
ENVIRONMENTAL STATEMENT
MARIN COUNTY CALIFORNIA
NOVATO CENTER
SITE PLAN
ALTERNATIVE #2R
IN SHEET
SHEET NO.
U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E
DRAWN:
FILE NO.
TRACED:
TO ACCOMPANY REPORT
CHECKED:
DATED

PLATE 3



ENVIRONMENTAL STATEMENT

MARIN COUNTY CALIFORNIA

NOVATO CENTER

100 - YEAR FLOOD PLAIN

ALTERNATIVES #1–4

U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C. OF E.

DRAWN:

TRACED:

CHECKED:

TO ACCOMPANY REPORT DATED JULY 1979

FILE NO. 74-75-1

PLATE 4

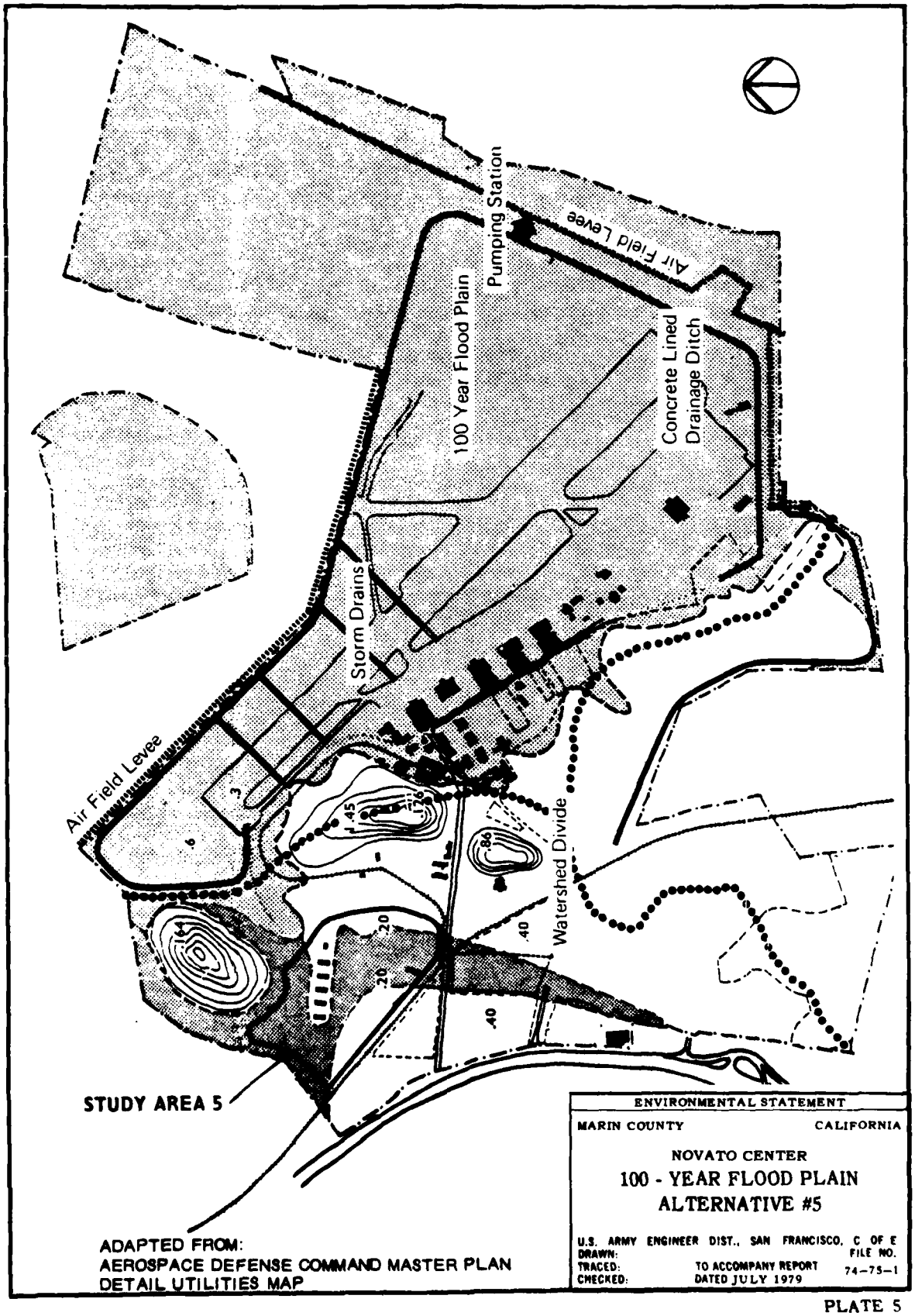
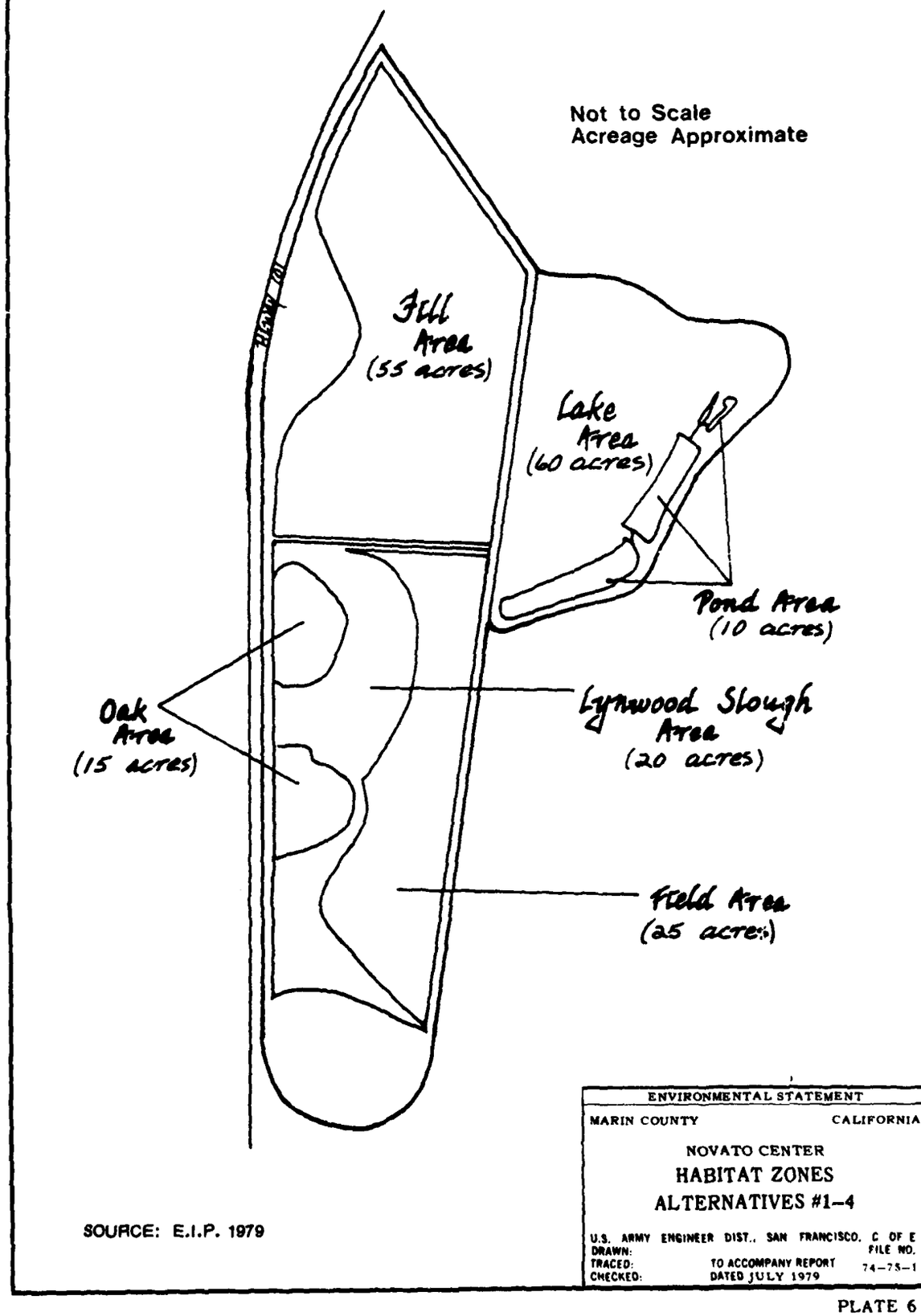

Pumping Station
Air Field Levee
100 Year Flood Plain
Concrete Lined
Drainage Ditch
Storm Drains
Air Field Levee
Watershed Divide
STUDY AREA 5
ADAPTED FROM:
AEROSPACE DEFENSE COMMAND MASTER PLAN
DETAIL UTILITIES MAP
ENVIRONMENTAL STATEMENT
MARIN COUNTY CALIFORNIA
NOVATO CENTER
100 - YEAR FLOOD PLAIN
ALTERNATIVE #5
U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E
DRAWN:
TRACED:
CHECKED:
TO ACCOMPANY REPORT
DATED JULY 1979
FILE NO.
74-75-1

PLATE 5



SOURCE: E.I.P. 1979

ENVIRONMENTAL STATEMENT

MARIN COUNTY CALIFORNIA

NOVATO CENTER

HABITAT ZONES

ALTERNATIVES #1–4

U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E
DRAWN:
TRACED:
CHECKED:
TO ACCOMPANY REPORT
DATED JULY 1979
FILE NO. 74-75-1

PLATE 6

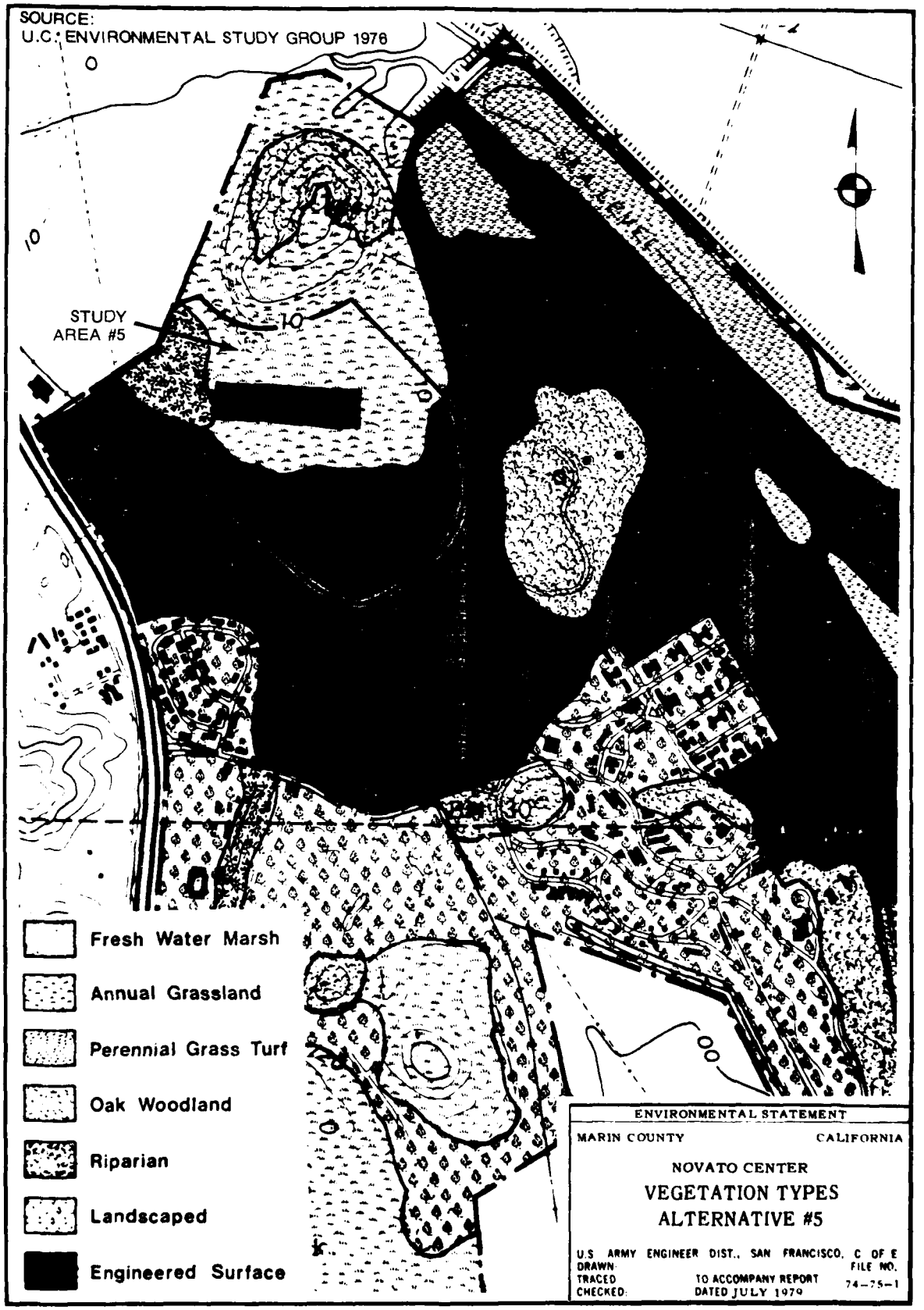
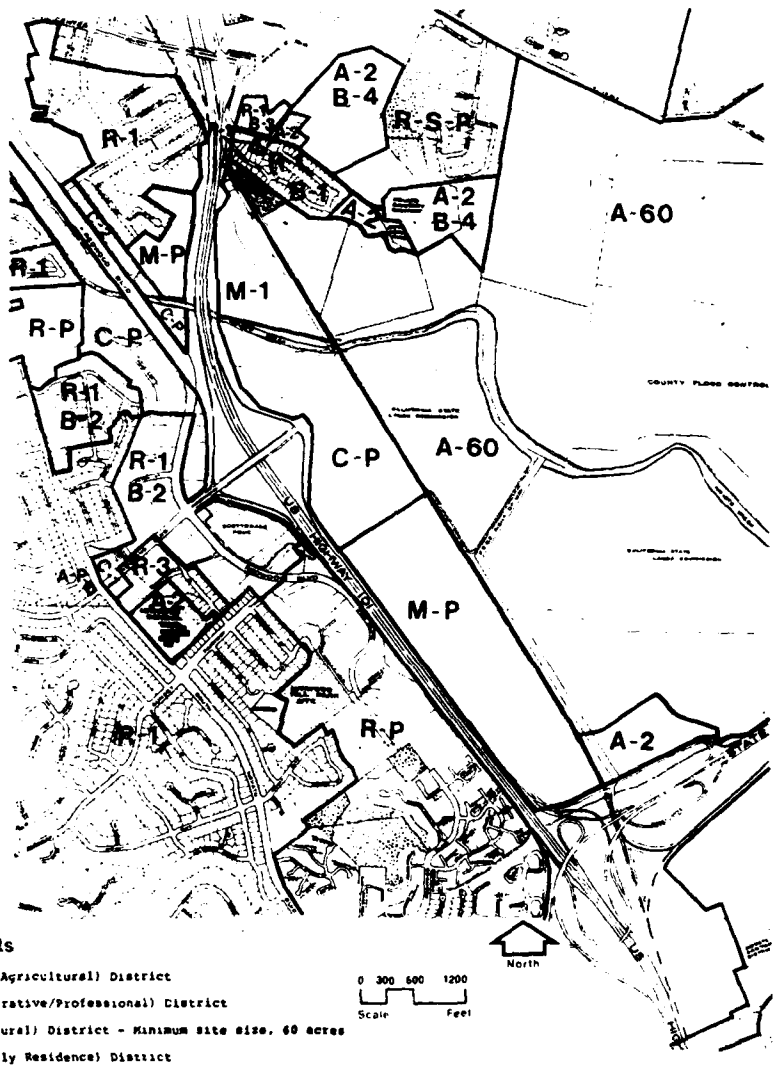

SOURCE:
U.C. ENVIRONMENTAL STUDY GROUP 1976
STUDY AREA #5
Fresh Water Marsh
Annual Grassland
Perennial Grass Turf
Oak Woodland
Riparian
Landscaped
Engineered Surface
ENVIRONMENTAL STATEMENT
MARIN COUNTY CALIFORNIA
NOVATO CENTER
VEGETATION TYPES
ALTERNATIVE #5
U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E
DRAWN:
TRACED
CHECKED:
TO ACCOMPANY REPORT
DATED JULY 1979
FILE NO.
74-75-1

PLATE 7



Zone Districts

- **A-2** (Limited Agricultural) District
- **A-P** (Administrative/Professional) District
- **A-60** (Agricultural) District - Minimum site size, 60 acres
- **R-1** (One Family Residence) District
- **R-3** (Multiple Residence) District
- **R-P** (Planned Residential) District
- **R-S-P** (Residential-Single Family Planned) District
- **C-2** (General Commercial) District
- **C-P** (Planned Commercial) District
- **M-1** (Light Industrial) District
- **M-P** (Planned Industrial) District

Building Site Area Regulations

- **B-1** Building site area, six thousand square feet.
- **B-2** Building site area, ten thousand square feet.
- **B-3** Building site area, twenty thousand square feet.
- **B-4** Building site area, one acre.

SOURCE: E.I.P. 1979

ENVIRONMENTAL STATEMENT

MARIN COUNTY CALIFORNIA

NOVATO CENTER

ZONING DESIGNATIONS ALTERNATIVES #1–4

U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E
DRAWN: FILE NO.
TRACED: TO ACCOMPANY REPORT 74-75-1
CHECKED: DATED JULY 1979

PLATE 8

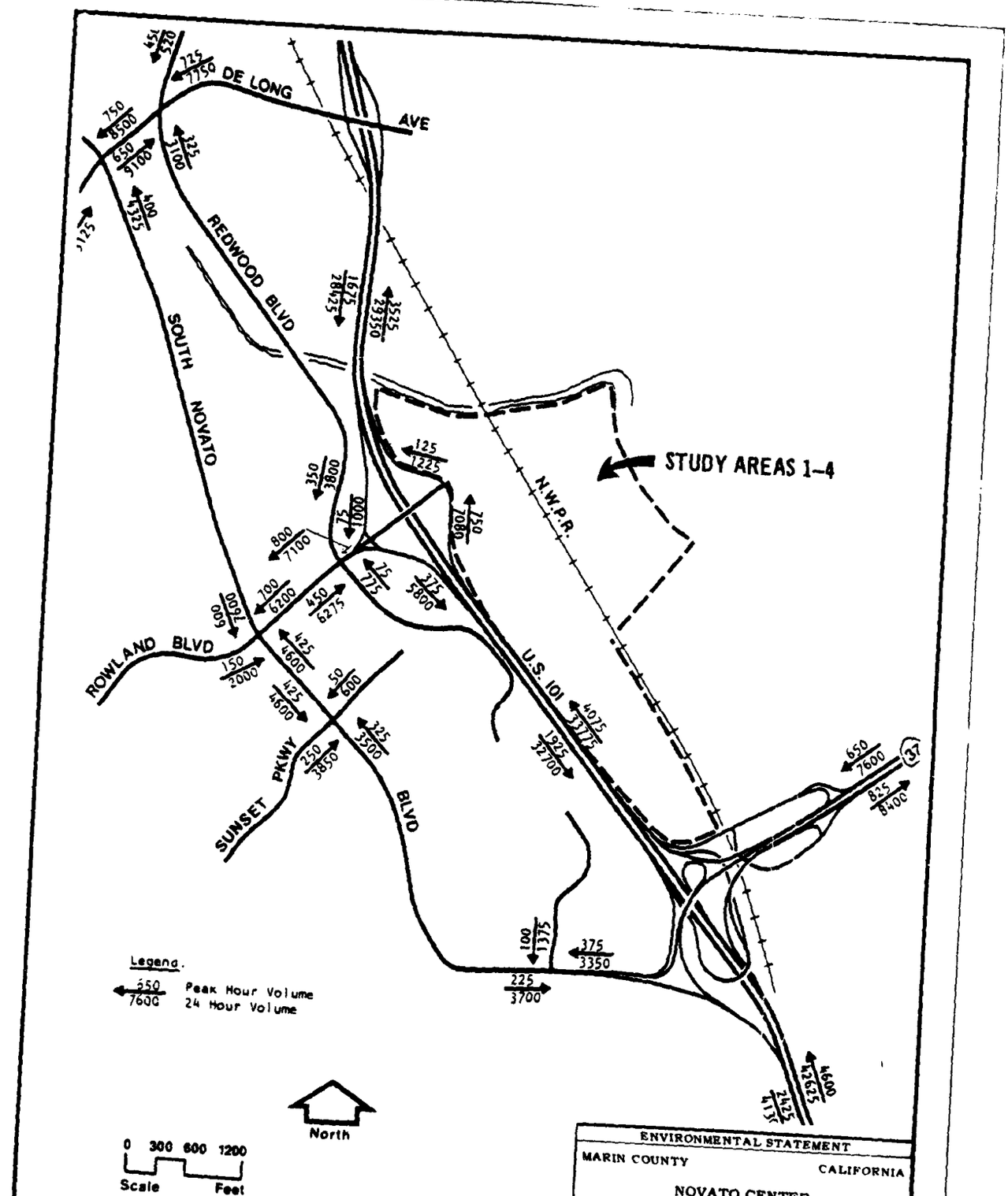

DE LONG AVE
REDWOOD BLVD
SOUTH NOVATO BLVD
ROWLAND BLVD
SUNSET PKWY
N.W.P.R.
U.S. 101
STUDY AREAS 1-4
Legend
650 / 7600 Peak Hour Volume
24 Hour Volume
North
0 300 600 1200
Scale Feet
(Typical Friday, 1977-78)
SOURCE: E.I.P. 1979
ENVIRONMENTAL STATEMENT
MARIN COUNTY CALIFORNIA
NOVATO CENTER
EXISTING TRAFFIC VOLUMES
ALTERNATIVES #1-4
U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E
DRAWN:
TRACED:
CHECKED:
TO ACCOMPANY REPORT
DATED JULY 1979
FILE NO. 74-75-1

PLATE 9

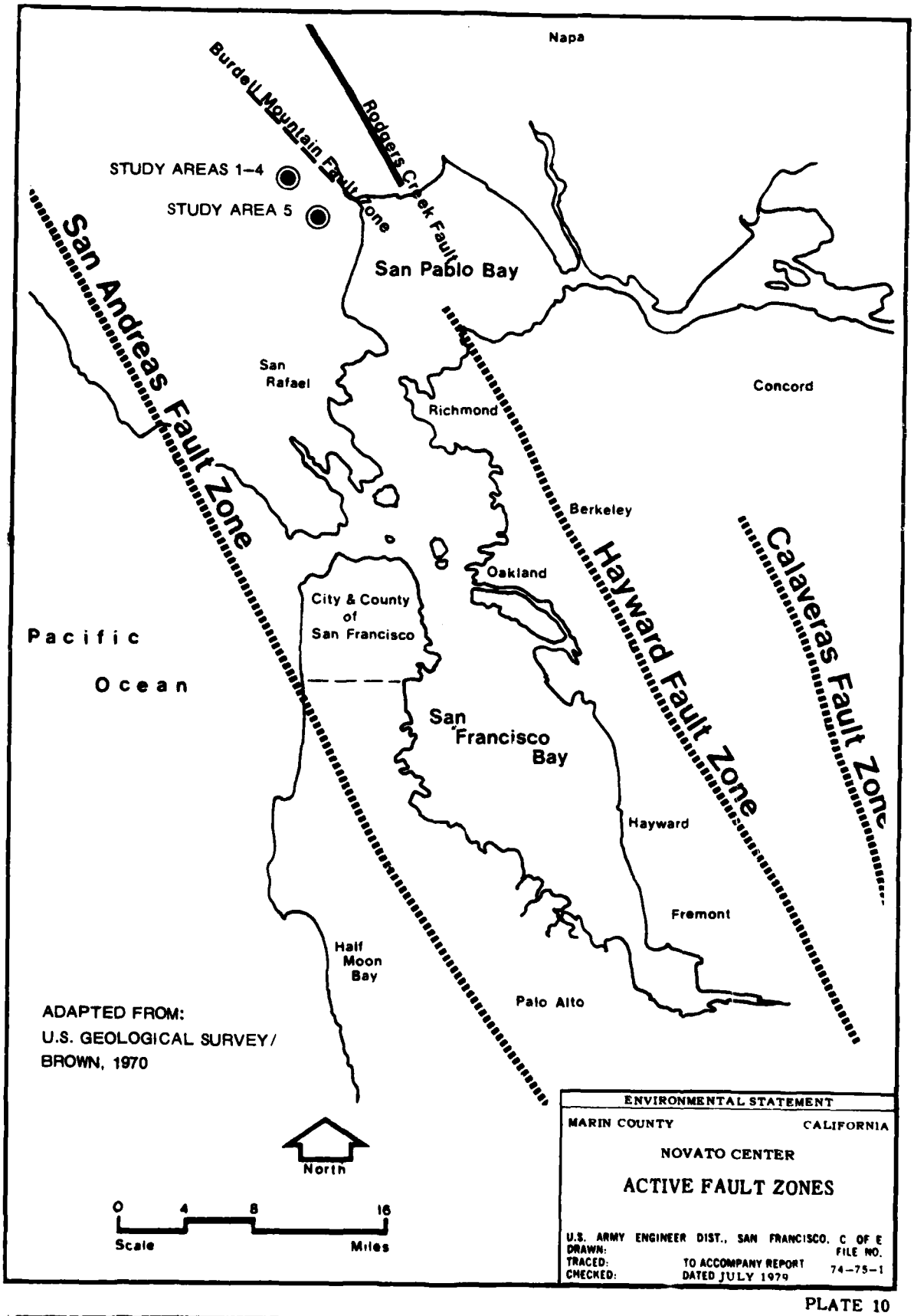
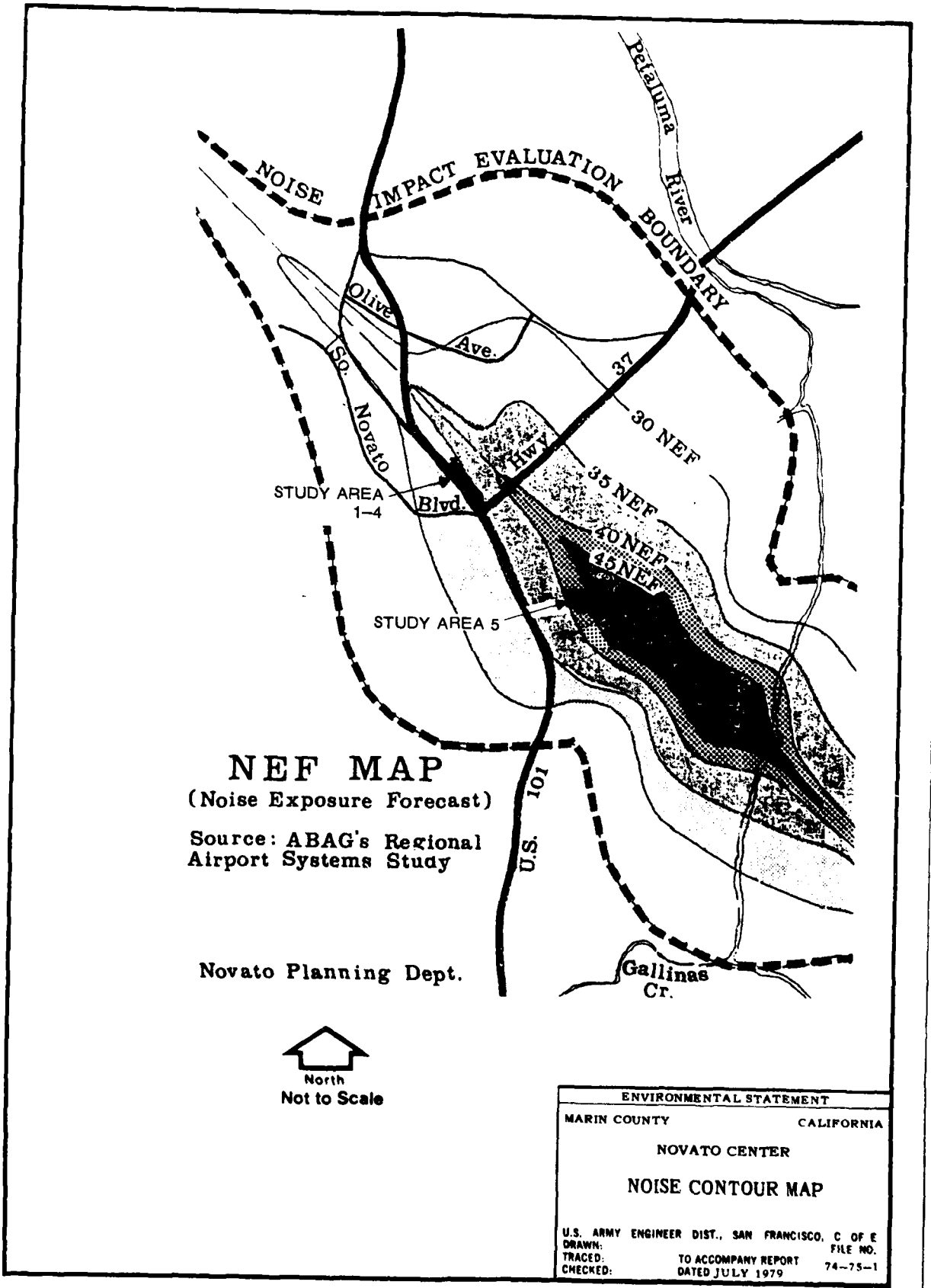

Napa
Burdell Mountain Fault Zone
Rodgers Creek Fault
STUDY AREAS 1–4
STUDY AREA 5
San Andreas Fault Zone
San Pablo Bay
San Rafael
Richmond
Concord
Berkeley
Hayward Fault Zone
Calaveras Fault Zone
Oakland
City & County of San Francisco
Pacific Ocean
San Francisco Bay
Hayward
Fremont
Half Moon Bay
Palo Alto
ADAPTED FROM:
U.S. GEOLOGICAL SURVEY/
BROWN, 1970
North
0 4 8 16
Scale Miles
ENVIRONMENTAL STATEMENT
MARIN COUNTY CALIFORNIA
NOVATO CENTER
ACTIVE FAULT ZONES
U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E
DRAWN:
TRACED:
CHECKED:
TO ACCOMPANY REPORT
DATED JULY 1979
FILE NO. 74-75-1

PLATE 10



ENVIRONMENTAL STATEMENT

MARIN COUNTY CALIFORNIA

NOVATO CENTER

NOISE CONTOUR MAP

U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E

DRAWN:
TRACED:
CHECKED:

TO ACCOMPANY REPORT DATED JULY 1979

FILE NO. 74-75-1

PLATE 11

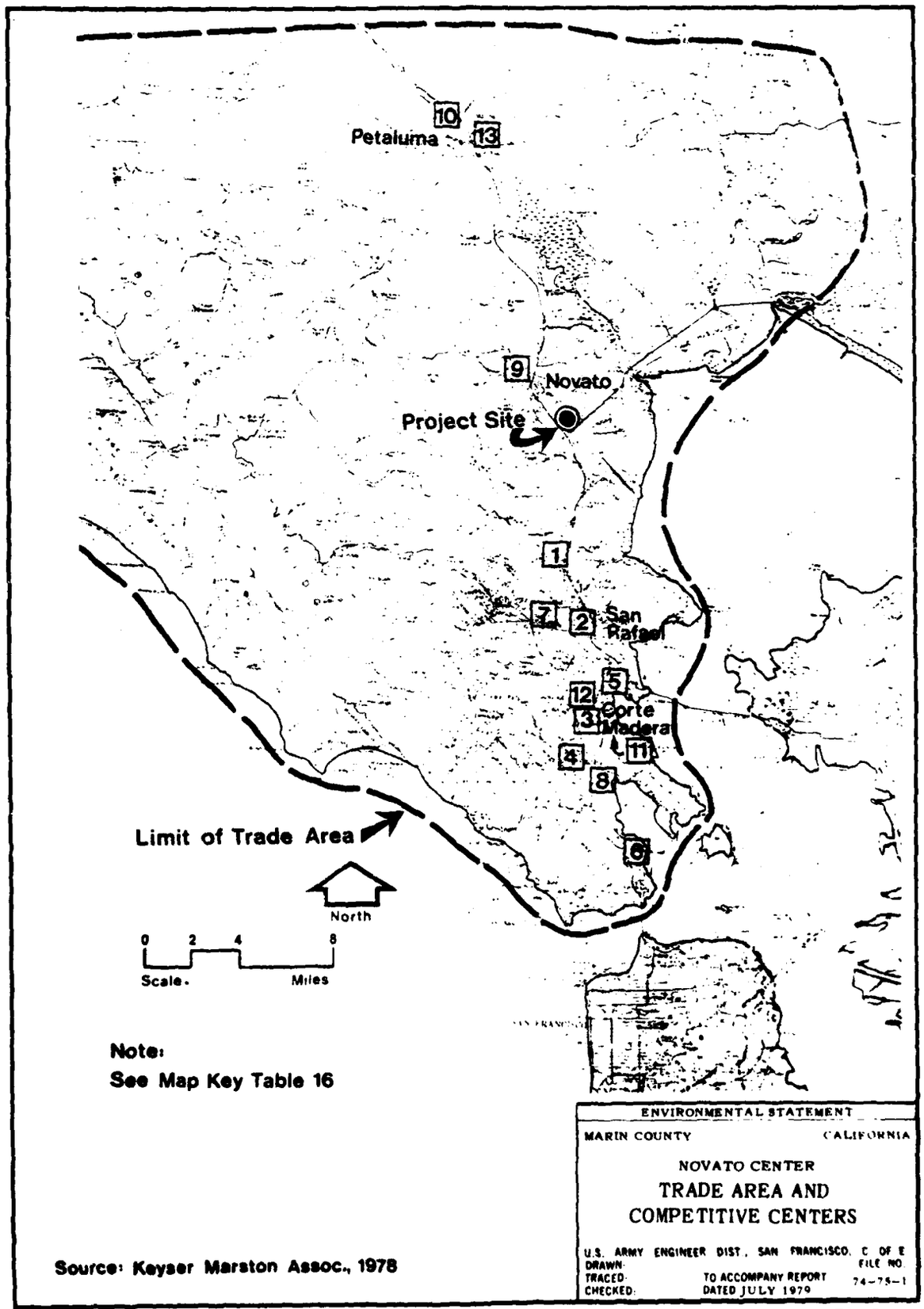
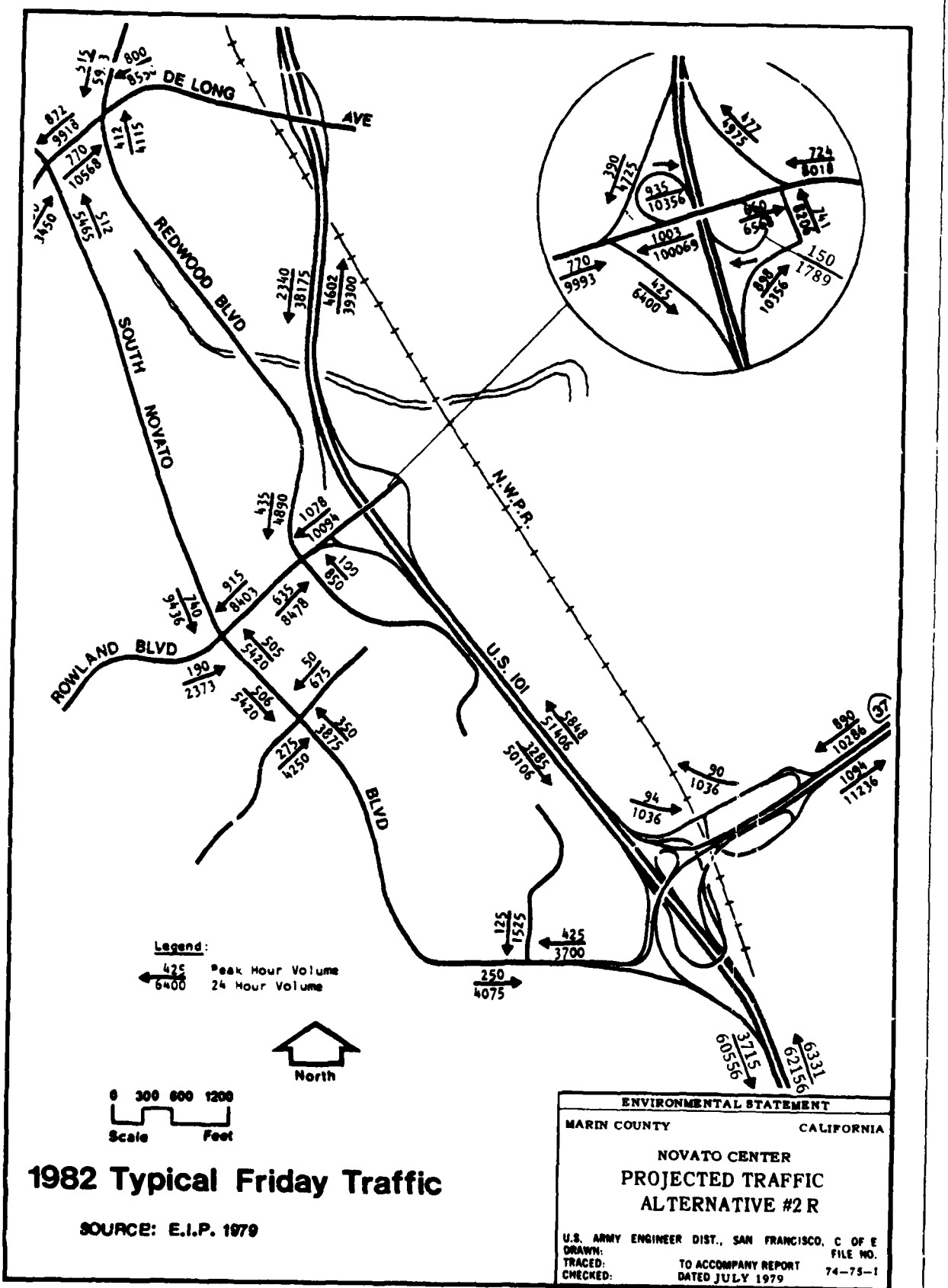

10
Petaluma
13
9
Novato
Project Site
1
7
2
San Rafael
5
12
3
Corte Madera
11
4
8
6
Limit of Trade Area
North
0 2 4 8
Scale. Miles
Note:
See Map Key Table 16
Source: Keyser Marston Assoc., 1978
ENVIRONMENTAL STATEMENT
MARIN COUNTY CALIFORNIA
NOVATO CENTER
TRADE AREA AND
COMPETITIVE CENTERS
U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E
DRAWN:
TRACED:
CHECKED:
TO ACCOMPANY REPORT
DATED JULY 1979
FILE NO.
74-75-1

PLATE 12



1982 Typical Friday Traffic

SOURCE: E.I.P. 1979

ENVIRONMENTAL STATEMENT

MARIN COUNTY CALIFORNIA

NOVATO CENTER

PROJECTED TRAFFIC

ALTERNATIVE #2 R

U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E

DRAWN:

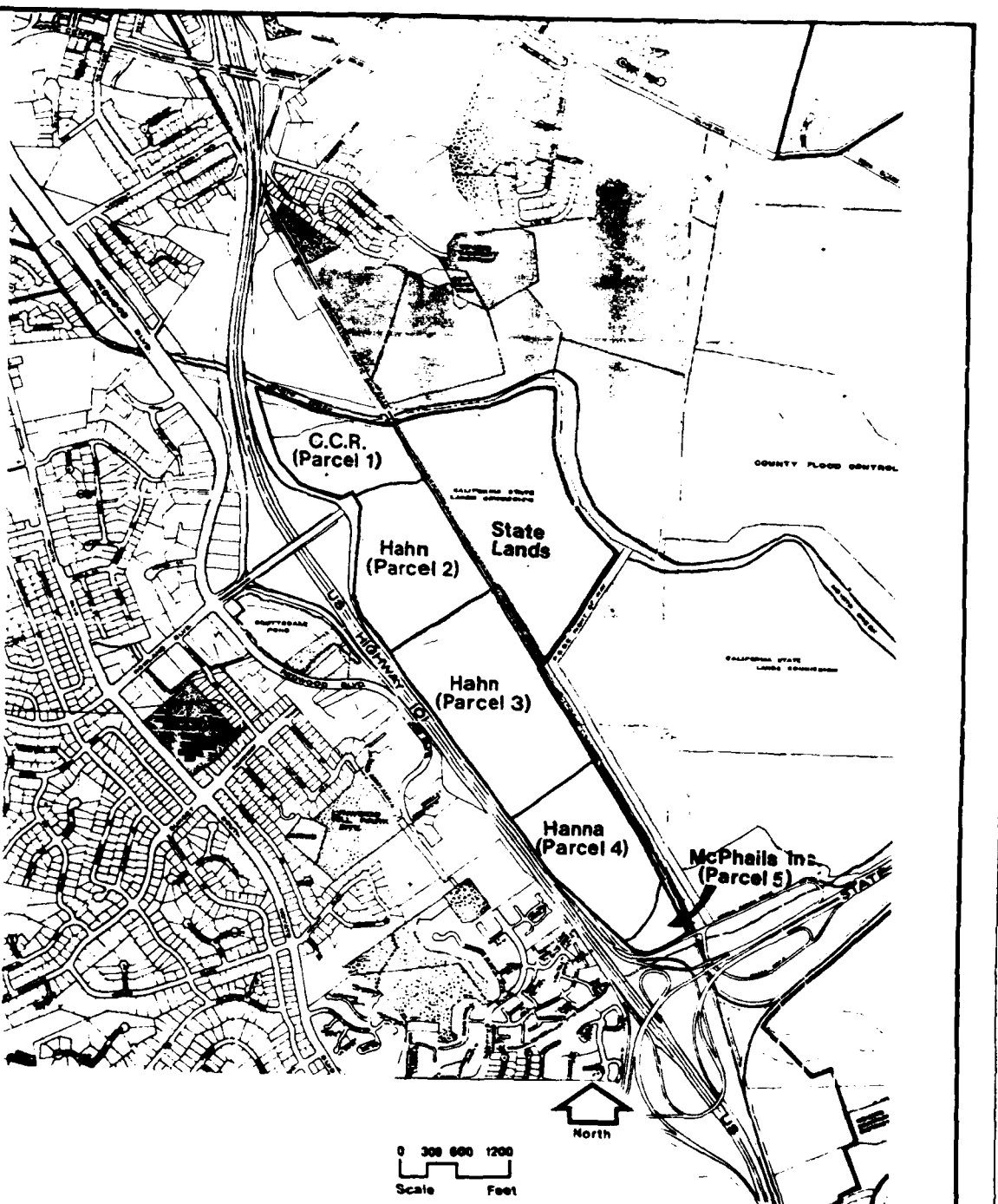
TRACED:

CHECKED:

TO ACCOMPANY REPORT DATED JULY 1979

FILE NO. 74-75-1

PLATE 13



Source: Novato Planning Dept., Feb., 1979

ENVIRONMENTAL STATEMENT

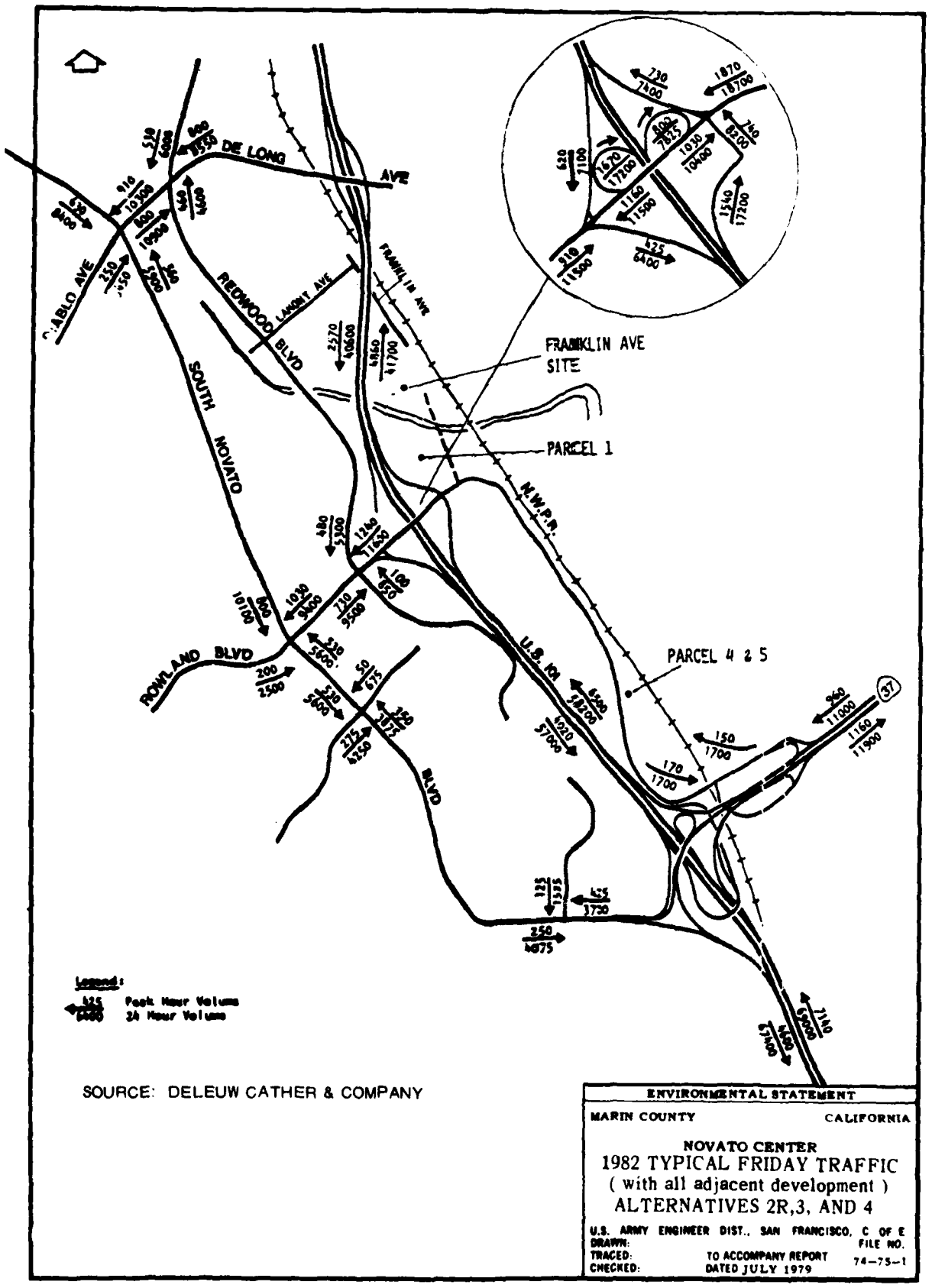
MARIN COUNTY CALIFORNIA

NOVATO CENTER

LAND OWNERSHIP MAP

U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E
DRAWN:
TRACED:
CHECKED:
TO ACCOMPANY REPORT
DATED JULY 1979
FILE NO. 74-75-1

PLATE 14



SOURCE: DELEUW CATHER & COMPANY

ENVIRONMENTAL STATEMENT

MARIN COUNTY CALIFORNIA

NOVATO CENTER

1982 TYPICAL FRIDAY TRAFFIC

(with all adjacent development)

ALTERNATIVES 2R,3, AND 4

U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E

DRAWN: FILE NO.

TRACED: TO ACCOMPANY REPORT 74-75-1

CHECKED: DATED JULY 1979

PLATE 15

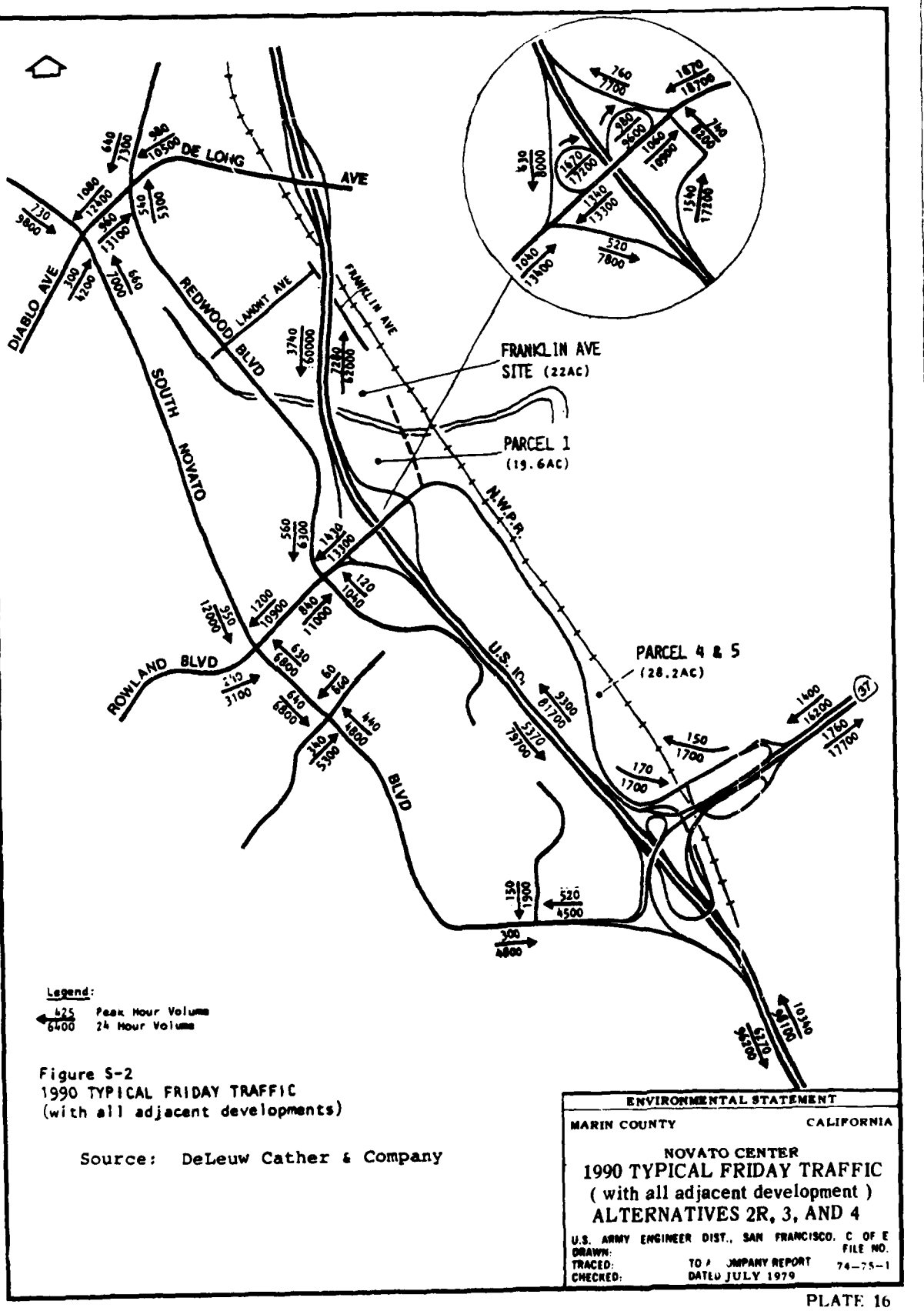


Figure S-2
1990 TYPICAL FRIDAY TRAFFIC
(with all adjacent developments)

Source: DeLeuw Cather & Company

ENVIRONMENTAL STATEMENT

MARIN COUNTY CALIFORNIA

NOVATO CENTER
1990 TYPICAL FRIDAY TRAFFIC
(with all adjacent development)
ALTERNATIVES 2R, 3, AND 4

U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E
DRAWN:
TRACED: TO A JMPANY REPORT FILE NO. 74-75-1
CHECKED: DATED JULY 1979

PLATE 16

APPENDIX A

AIR QUALITY ANALYSIS

APPENDIX A

NOVATO CENTER
AIR QUALITY

INTRODUCTION

The Clean Air Act Amendments of 1970 require that each State submit an Implementation Plan to the U.S. Environmental Protection Agency (EPA) outlining the control strategy that will be used by the State to attain and/or maintain the Ambient Air Quality Standards. An implementation plan thus becomes a vehicle for the air quality planning effort for a region (air basin). Elements of the implementation plan must provide for land use and transportaiton controls, air quality monitoring, and a procedure for review of future development to determine its impact upon the air quality in a region. In a revision to the State of California Implementation Plan, the State Air Resources Board recommended to EPA that the San Francisco Bay Area be designated as an Air Quality Maintenance Area (AQMA) for carbon monoxide, total suspended particulates, and oxidants since the Ambient Air Quality Standards are not expected to be met by the target year of 1982. To realize significant, long-term controls over areas with air pollution problems (AQMA's), a detailed air quality analysis is required for all developments proposed within an AQMA to evaluate the project's impact on the air quality in the region.

Implementation of the proposed project would result in commercial development, specifically a regional shopping center. The primary source of emissions related to the proposed project are motorized vehicles. Therefore, an air quality analysis for these vehicles has been performed to quantitatively determine project-related emissions of air pollutants and to evaluate the impact upon the air quality in the air basin. The analysis considered the following pollutants: carbon monoxide, hydrocarbons, nitrogen dioxide, sulfur dioxide and total suspended particulates. The precursors of oxidents, hydrocarbons and nitrogen dioxide, were considered due to the difficulty in modeling for oxidants.

BASIC DATA AND ASSUMPTIONS

To perform an air quality analysis, certain basic data are required to compute pollutant emissions resulting from a proposed project. In this air quality analysis, as in most analyses, a large percentage of the basic information was not available. Due to fiscal and temporal constraints, certain assumptions about existing and future conditions had to be made in order to complete the analysis. This analysis quantitatively considered Alternatives #1, #2R, #3, and #5. Alternative #4 was not quantitatively considered due to the lack of project details for the various development possibilities. However, Alternative #4 was considered qualitatively and is discussed on page 52 of the main report. The data and assumptions used in this air quality analysis are discussed in the paragraphs that follow.

Alternatives #1, #2R, and #3. The year 1982 was selected as the year for the air quality analysis since the proposed Novato Center is expected to be in operation at this date. The Bay Area Air Quality Management District (BAAQMD), formerly called the Bay Area Air Pollution Control District, background emissions projections exist for 1985. The 1982 projected background emissions used in this analysis were derived through interpolation.

The daily trip ends (a trip end is the origin or destination of a trip: each trip thus consists of two trip ends: however in the case of the shopping center such as Novato Center it is assumed that a trip end is equivalent to a trip since most trip ends occur outside the project site) generated by the project-related traffic were calculated using the trip generation factors contained in the Novato Regional Shopping Center Draft Environmental Report (NRSCDER), dated March 1979. The trips generated by the proposed project are shown on Table A-1.

The 1982 traffic volumes for the various links (roadway) shown in Table A-2 are based on projections contained in the NRSCDER and updated information. The location of these links are shown on Plates A-1 and A-2. The project-related traffic was assigned to the various links per the NRSCDER and updated information.

Alternative #5. The year 1985 was selected for the air quality analysis since it was considered a feasible date for project development. The BAAQMD's 1985 background emissions were used in the calculations. The daily trip ends generated by the project-related traffic were calculated using the trip generation factors contained in the NRSCDER. The trips generated by the proposed project are shown on Table A-1.

The 1985 traffic volumes for the various links (roadway) shown in Table A-9 are based on projections contained in the Draft Environmental Impact Statement on Disposition and Use of Federal Surplus Property at Hamilton Air Force Base, Novato, California (DEISDUFSPHAFB), dated April 1979. The location of these links are shown on Plate A-1. The project-related traffic was assigned to the various links as noted in Table A-9.

METHODOLOGY

The analysis of the air quality impact presented herein basically follows the methodology developed by the Bay Area Air Quality Management District (BAAQMD), as described in its Information Bulletin titled Guidelines for Air Quality Impact Analysis (Bay Area Air Pollution Control District, 1975). In accordance with the BAAQMD guidelines, air quality impact computations were made for project-related pollutant emissions in terms of: (1) line source impact, i.e., pollutant concentration along and immediately adjacent to the most heavily traveled links (roadways) in the traffic circulation system of the project area; (2) area source impact, i.e., pollutant concentrations in the immediate air basin, one-kilometer square areas centered on the project site; and (3) regional impact, i.e., pollutant concentration contributed by project-related emissions to the regional air basin.

The vehicle emission factors used in this analysis are shown in Table A-3 and were derived through interpolation of the Environmental Protection Agency's MOBILE 1 1975 Base and 1985 Projected emission factor data as obtained from the BAAQMD.

Table 1, (average vehicle emission factors for the San Francisco Bay Area vehicle mix) of the Guidelines for Air Quality Impact Analysis was not used since the factors are no longer valid.

LINE SOURCE ANALYSIS

The purpose of the line source analysis is two-fold. First, it evaluates the probable impact of project-related emissions along the link (roadway) under investigation. Second, it evaluates the probable impact of project-related emissions upon points immediately downwind from the link. These points known as sensitive receptors are defined as buildings and areas where people would be spending more than two or three hours at a time (Bay Area Air Pollution Control District, 1975).

Carbon monoxide (CO) concentrations are used for the line source computations since, if the CO concentrations do not exceed the standards, it is improbable that the standards for the other pollutants would be exceeded.

Alternatives #1, #2R, and #3. Line source impact computations were performed for each link to determine the concentrations of CO along the most heavily traveled roads inside the Universal Transverse Mercator (UTM) grid square. The results of these computations are summarized in Table A-5. With the exception of four links (L-2, L-13, L-17, and L-22) existing CO concentrations are substantially below the standards for the 1-hour averaging time and no links exceed the standards for the 8-hour averaging time. The four links that exceed the CO concentration standards for the 1-hour average time under existing conditions are road segments of U.S. 101. Links numbered L-2, L-13, and L-22 exceed the 1-hour averaging time standard by 54% and L-17 exceeds the standard by 33%.

In 1982 under the "Without Project" conditions there is a slight improvement in the level of CO concentrations despite the growth in traffic. This would be primarily due to improvements of vehicular emission control systems. However, the 1982 "Without Project" condition still shows U.S. 101, represented by links numbered L-2, L-13, L-17, and L-22, exceeding the standard for the 1-hour averaging time by 13% to 31%.

The 1982 "Project Only" condition shows that CO concentrations attributed to the proposed project generated traffic would in no instance exceed the standards for the 1-hour and 8-hour averaging times. The "Project Only" 1-hour and 8-hour averaging time concentrations would at most amount to 33% and 19% of the standards, respectively.

The 1982 "With Project" CO concentrations do not exceed the standards except for the links associated with U.S. 101 (L-2, L-13, L-17, and L-22) for the 1-hour averaging time. These four links exceed the 1-hour standard by 24% to 63% of which 9% and 20%, respectively, are contributed by the "Project Only". Excluding the U.S. 101 links, the "With Project" CO concentrations at

most amount to 28% of the 1-hour standard and 19% of the 8-hour standard. The "Project Only" impact on the "With Project" condition ranges from a low of 6% to a high of 100% for both the 1-hour and 8-hour averaging times. Those links showing an impact of 100% represent road segments that would only be built as part of the project.

In summary, of the four links associated with U.S. 101 (links L-2, L-13, L-17, and L-22) under the "With Project" condition that exceed the 1-hour averaging time standard by 24% to 63%, the "Project Only" impact would account for 9% and 20%, respectively, of the total concentration. It is significant that CO concentrations for these links exceed the 1-hour averaging time standard for existing as well as the future "Without" and "With" proposed project conditions. The line source impact of project related CO emissions for the remaining links ranges from 6% to 100% with no link concentrations exceeding the standards.

The line source impact analysis also involves an evaluation of the effect of project-related emissions upon sensitive receptors. Sensitive receptors include schools, playgrounds, hospitals, nursing homes, residences or those sites where pollutant-sensitive human receptors might conceivably spend one or more hours within 100 meters of the subject road source. The area east of U.S. 101 lacks any sensitive receptors since it is undeveloped. However, sensitive receptors exist to the west of U.S. 101. There are many residences, some of which are very close to both Redwood Boulevard and U.S. 101 traffic. In this analysis computations of carbon monoxide concentrations at distances of 5, 20, and 100 meters from the various links are used rather than actual receptors. The results of the computations are summarized in Table A-6 (1-hour averaging time) and Table A-7 (8-hour averaging time). The 1-hour averaging time concentrations at the 5 meter distance exceed the standard for three links (L-2, L-13, and L-22) under the existing as well as the 1982 "With Project" condition. The proposed project would be responsible for these links exceeding the standards as the "Without Project" concentrations exceed the standard by 14% for link L-2 and by 16% for link L-13 and L-22. All the other link concentrations are less than the standard and in no case would these concentrations exceed 88% of the standard for the 1-hour averaging time.

Table A-7 concentrations for the 8-hour averaging time in no instance exceed the standard. The "worst case" "With Project" concentration is 53% of the standard and this is only for those links comprising U.S. 101. By excluding the U.S. 101 links then CO concentrations in no case exceed 13% of the standard.

Concentrations at sensitive receptors located 5 meters in distance from U.S. 101 links exceed the standard for the 1-hour averaging time due to the proposed project. While this may be considered significant, in actuality there are currently no (and it is reasonable to assume none in the future) residences or other sensitive receptors within 5 meters of U.S. 101. Concentrations at sensitive receptors located 5, 20, and 100 meters from the other links do not exceed the standards.

Alternative #5. The results of the line source impact computations are summarized in Table A-11. With the exception of two links (L-1 and L-5) existing CO concentrations are substantially below the standard for the 1-hour averaging time and no links exceed the standard for the 8-hour averaging time. The two links that exceed the CO concentration standard for the 1-hour averaging time under exising conditions are road segments of U.S. 101. These two road links exceed the 1-hour averaging time standard by 241%.

The 1985 "Without Project" condition indicates improvement in the CO concentration levels despite the growth in traffic. This decrease in CO concentrations would be primarily due to improvements of vehicular emission control systems. However, the 1985 "Without Project" condition still shows U.S. 101 (links L-1 and L-5) exceeding the 1-hour averaging time standard by 115%.

The 1985 "Project Only" condition shows that CO concentrations attributed to the proposed project generated traffic would in no instance exceed the standards for the 1-hour and 8-hour averaging times. The "Project Only" 1-hour and 8-hour averaging time concentrations would at most amount to 44% and 40% of the standards, respectively.

The 1985 "With Project" CO concentrations do not exceed the standards except for the links associated with U.S. 101 (L-1 and L-5). However, the proposed project has no impact on these two links. Excluding L-1 and L-5, the "With Project" CO concentrations at most amount to 50% of the 1-hour standard and 69% of the 8-hour standard. The "Project Only" impact on the "With Project" condition ranges from a low of 64% to a high of 92% of the 1-hour and 8-hour averaging time standards, inclusive.

In summary, the "Project Only" condition does not impact the U.S. 101 links which exceed the 1-hour averaging time standard for both the existing and future conditions. The line source impact of project related CO emissions for links L-2, L-3, L-4, and L-6 ranges from 64% to 92% with no link concentrations exceeding the standards.

The line source impact anavsis also involves an evaluation of the effect of project-related emissions upon sensitive receptors. The primary sensitive receptor is a school east of Nave Drive. In this analysis computations of carbon monoxide concentrations at distances of 5, 20, and 100 meters from the various links are used rather than actual receptors.

The results of the computations are summarized in Table A-12 (1-hour averaging time) and Table A-13 (8-hour averaging time). The 1-hour averaging time concentrations at the 5 and 20 meter distances exceed the standard for two links (L-1 and L-5) under the existing "Without Project" and "With Project" (except for the 20 meter distance) conditions. The "Project Only" concentrations have no impact on the two links that exceed the standards. All the other link concentrations are less than the standard and in no case would the concentrations exceed 80% of the 1-hour averaging time standard.

Table A-13 concentrations for the 8-hour averaging time do not exceed the standard under any condition. The "worst case" "With Project" concentration is 46% of the standard and this is only for the U.S. 101 links on which the proposed project has no impact.

AREA SOURCE ANALYSIS

The purpose of the area source analysis is to provide an indication of the probable impact of the project-related emissions on the air quality in the local area. The computations used in this analysis are designed to provide an estimate of concentrations of various pollutants produced by project emissions and averaged spatially over the local area. In this analysis the local area for Alternatives #1, #2R, and #3 is defined as consisting of four each one square kilometer grids which include the proposed project site and most heavily traveled roads. Alternative #5 consists of two each one square kilometer grids. These six each one square kilometer grids identified as 4214000 meters north and 539000 meters east, 4215000 meters north and 538000 meters east, and 4216000 meters north and 538000 meters east for Alternative #1, #2R, and #3 and 4212000 meters north and 541000 meters east, and 4211000 meters north and 541000 meters east for Alternative #5 are based on the Universal Transverse Mercator (UTM) grid shown on the Novato Quadrangle, 7.5 Minute Series Topographic Sheet (U.S. Geological Survey, 1968). These grid squares were then superimposed on the California State Automobile Association Novato and Vicinity Road Map, dated March 1978. The location of the six each one square kilometer grids is shown on Plates A-1 and A-2.

Alternatives #1, #2R, and #3. Background emissions data for the year 1982, derived through interpolation of 1975 and 1985 emission data furnished by the BAAQMD, were used for the area source analysis. The average vehicle speed was assumed to be 20, 30, 40, or 50 miles per hour, depending on the road and posted speed limits, with 3 minutes of idling time per trip. The area source analysis assumes a wind speed of 2 meters per second.

The area source impacts, summarized in Table A-8, are indicated as the maximum concentration of air quality standard related contaminants expected to occur during a single year as the results of project-related emissions. Impact calculations are based on simplified manual dispersion calculations and statistical techniques with conservative imput values.

Table A-8 indicates that all pollutant concentrations except Hydrocarbons (HC) and Nitrogen Dioxide (NO_2) are well within the limits specified by the Ambient Air Quality Standards. The total concentrations (background plus proposed project emissions) of HC for the 3-hour averaging time and of NO_2 for the 1-hour and 1-year averaging time would greatly exceed, except for grid-square #4215539 and its NO_2 1-year concentration, the respective Ambient Air Quality Standards. The HC concentrations for both the background and project conditions, with one exception, exceed the standards and the proposed project's impact on total concentrations may be considered significant, ranging from 17% to 52%.

Background concentrations of NO_2 for both the 1-hour and 1-year averaging time, except for grid-square #4215539, greatly exceed the Ambient Air Quality Standards. The proposed project concentrations never exceed 42% of the standards. However, the proposed project's impact on the total concentrations ranges from 13% to 50% and may be considered significant for all grid-squares except #4215539 for the 1-year averaging time.

Alternative #5. The 1985 background emissions data furnished by the BAAQMD were used for the area source analysis. The average vehicle speed was assumed to be 20 and 50 miles per hour depending on the road and posted speed limits, with 3 minutes of idling time per trip. The area source analysis assumes a wind speed of 2 meters per second.

Table A-14 indicates that all pollutant concentrations except Hydrocarbons (HC) and Nitrogen Dioxide (NO_2) are well within the limits specified by the Ambient Air Quality Standards. The total concentrations (background plus proposed project emissions) of HC for the 3-hour averaging time and of NO_2 for the 1-hour averaging time for grid-square #4211541 would greatly exceed the respective standards. The HC concentrations for both the background and project conditions, with one exception, exceed the standards and the proposed project's impact on the total concentrations may be considered significant ranging from 39% to 94%.

The background concentrations of NO_2 in grid-square #4211541 for the 1-hour averaging time exceeds the standard. The proposed project concentrations never exceed 35% of the standards. However, the proposed project's impact on the total concentrations ranges from 16% to 86% and may be considered significant.

REGIONAL IMPACT ANALYSIS

Alternatives #1, #2R, #3, and #5. The regional impact analysis determines the impact of project-related emissions upon the air quality in the region. The results of the analysis, which are summarized in Table A-8 for Alternatives #1, #2R, and #3 and Table A-14 for Alternative #5 show that the project-related emission's impact on the region would be minimal.

TABLE A-1

NOVATO CENTER TRAFFIC GENERATION 1/

		Evening Peak Hour		24-Hour Total	
		Trip Rate 2/	Total 3/	Trip 2/	Total 3/
Typical Friday	In	1.52	1,240	17.5	14,242
	Out	1.58	1,290	17.5	14,242
	Total	3.1	2,530	35	28,484

1/ Corresponds to fully operational and matured shopping center. This maximum level trip generation was used for the impact analysis.

2/ Trip rate is expressed as the number of trips per 1,000 square feet of gross leasable floor area. This rate was determined from the Institute of Transportation Engineering Information Report Trip Generation, 1976, book by comparing regional shopping centers between 500,000 and 1,000,000 square feet in size. This rate was used in the City of Novato Regional Shopping Center Draft EIR, March 1979.

3/ Total trips are based on 813,850 square feet of gross leasable floor area.

TABLE A-2

NOVATO CENTER ALTERNATIVES #1, #2R, AND #3

TRAFFIC VOLUMES IN PROJECT AREA

UTM Grid Square	Link Number	AVERAGE DAILY TRAFFIC VOLUME 1978	1982 Without Project	1982 Project Only	1982 With Project	Peak Hour Traffic
4214539	L-1	-	7775	0	7775	675
	L-2	66475	80800	20712	101512	9133
	L-3	-	-	2072	2072	184
	L-4	2750	3050	0	3050	250
4215538	L-5	7200	7950	0	7950	600
	L-6	9200	10150	690	10840	1011
	L-7	11925	13175	1726	14901	1252
	L-8	12475	13775	3106	16881	1550
	L-9	1550	1700	0	1700	200
	L-10	6900	7625	1380	9005	847
	L-11	5800	6400	0	6400	425
	L-12	1000	1100	3625	4725	390
	L-13	66475	80800	20712	101512	9133
	L-14	7080	7875	2481	10356	898
	L-15	-	-	10356	10356	935
	L-19	-	-	1789	1789	150
	L-21	-	-	16637	16637	1663
4215539	L-22	66475	80800	20712	101512	9133
4216538	L-16	1225	1350	3625	4975	477
	L-17	57775	70225	7250	77475	6942
	L-18	6900	7625	1380	9005	847
	L-20	-	-	8206	8206	741

SOURCE: Novato Regional Shopping Center Draft Environmental Impact Report, March 1979 and U.S. Army Corps of Engineers.

TABLE A-3

NOVATO CENTER ALTERNATIVES #1, #2R, AND #3

VEHICLE EMISSION FACTORS 1/

POLLUTANT	1982 GRAMS/MILE 10 MPH	20 MPH	30 MPH	40 MPH	50 MPH
CO	79.49	45.79	32.90	27.47	24.69
Hydrocarbons	7.69	4.21	2.72	2.11	1.73
NO	3.19	3.19	3.30	3.68	4.23
SO	.25	.25	.25	.25	.25
TSP	.45	.45	.45	.45	.45

1/ These emission factors were derived through interpolation of the 1975 Base and 1985 Projected emission factors contained in the Environmental Protection Agency's MOBILE 1 final document dated March 1978.

TABLE A-4

NOVATO CENTER ALTERNATIVES #1, #2R, AND #3

BASIC DATA PERTAINING TO ROADWAYS IN THE PROJECT AREA

UTM GRID NO.	LINK NUMBER	ROADWAY	SEGMENT	LINK LENGTH (MILES)	AVERAGE LINK SPEED MPH
4214539	L-1	South Novato Blvd	Btwn UTM Gridsquare Bdrys	0.72	30
	L-2	U.S. 101	Btwn UTM Gridsquare Bdrys	0.40	50
	L-3	SR 37 Exit to Project Site	Gridsquare Bdry-Project Site	0.33	20
	L-4	Redwood Blvd	Albion Ct-S Novato Blvd	0.38	30
4215538	L-5	South Novato Blvd	Sunset Pkwy-Gridsquare Bdry	0.19	30
	L-6	South Novato Blvd	Rowland Blvd-Sunset Pkwy	0.22	30
	L-7	South Novato Blvd	Gridsquare Bdry-Rowland Blvd	0.34	30
	L-8	Rowland Blvd	S. Novato Blvd-Redwood Blvd	0.22	30
	L-9	Redwood Blvd	Rowland Blvd-Oak Crest Ct	0.32	20
	L-10	Redwood Blvd	Gridsquare Bdry-Rowland Blvd	0.16	40
	L-11	S Bnd U.S. 101 On Ramp	Rowland Blvd-U.S. 101	0.28	30
	L-12	U.S. 101 Off Ramp	U.S. 101-Rowland Blvd	0.20	40
	L-13	U.S. 101	Gridsquare Bdry-Off Ramp For Rowland Blvd	0.24	50
	L-14	U.S. 101 Off Ramp	Btwn UTM Gridsquare Bdrys	0.20	50
	L-15	Loop-West of U.S. 101	Rowland Blvd-U.S. 101	0.15	30
	L-19	Loop-East of U.S. 101	Rowland Blvd-U.S. 101	0.12	30
	L-21	Rowland Blvd	U.S. 101 Off Ramp-Gridsquare Bdry	0.18	30

TABLE A-4
(Cont'd)

NOVATO CENTER ALTERNATIVES #1, #2R, AND #3

BASIC DATA PERTAINING TO ROADWAYS IN THE PROJECT AREA

UTM GRID NO.	LINK NUMBER	ROADWAY	SEGMENT	LINK LENGTH (MILES)	AVERAGE LINK SPEED MPH
4215539	L-22	U.S. 101	Btwn UTM Gridsquare Bdrys	0.56	50
4216538	L-16	North Bnd U.S. 101 On Ramp	Rowland Blvd-U.S. 101	0.20	40
	L-17	U.S. 101	Btwn UTM Gridsquare Bdrys	0.64	50
	L-18	Redwood Blvd	Btwn UTM Gridsquare Bdrys	0.56	40
	L-20	City Street-Proposed	Rowland Blvd-Project Site	0.06	20

SOURCE: U.S. Army Corps of Engineers.

TABLE A-5

NOVATO CENTER ALTERNATIVES #1, #2R, AND #3

LINE SOURCE IMPACT CONCENTRATION 1/
AT ROADWAY: CARBON MONOXIDE

ROAD LINK	1978 ONE HOUR	1978 EIGHT HOUR	1982 WITHOUT PROJECT ONE HOUR	1982 WITHOUT PROJECT EIGHT HOUR	1982 PROJECT ONLY ONE HOUR	1982 PROJECT ONLY EIGHT HOUR	1982 WITH PROJECT ONE HOUR	1982 WITH PROJECT EIGHT HOUR	PROJECT ONLY IMPACT ON WITH PROJECT % ONE HOUR	PROJECT ONLY IMPACT ON WITH PROJECT % EIGHT HOUR	TOTAL DAILY EMISSIONS GRAMS/DAY
L-1	5,184	1,051	4,826	877	-	-	4,826	877	-	-	184,174
L-2	62,483*	6,654	52,201*	6,275	13,107	1,609	65,308*	7,884	20	20	1,002,532
L-3	-	-	-	-	1,315	325	1,315	325	100	100	31,309
L-4	2,049	410	1,787	344	-	-	1,787	1,787	-	-	38,131
L-5	5,635	1,073	4,290	897	-	-	4,290	897	-	-	49,695
L-6	8,710	1,372	6,793	1,145	436	78	7,229	1,223	6	6	78,459
L-7	10,747	1,778	7,865	1,487	1,087	195	8,952	1,682	12	12	166,682
L-8	11,784	1,860	9,117	1,555	1,966	350	11,083	1,905	18	18	122,184
L-9	1,536	330	1,430	267	-	-	1,430	267	-	-	24,909
L-10	6,916	844	5,184	718	872	130	6,056	848	14	15	39,578
L-11	3,842	865	3,038	722	-	-	3,038	722	-	-	58,956
L-12	768	122	536	103	2,252	342	2,788	445	81	77	25,959
L-13	61,483*	6,654	52,201*	6,275	13,107	1,609	65,308*	7,884	20	20	601,519
L-14	7,685	772	5,720	667	701	210	6,421	877	11	24	74,593
L-15	-	-	-	-	6,685	1,168	6,685	1,168	100	100	51,106
L-16	1,280	149	1,072	127	2,338	341	2,410	468	69	73	27,332
L-17	53,285*	5,783	45,050*	5,454	4,591	563	49,641*	6,017	9	9	1,224,228
L-18	6,916	844	5,184	718	872	130	6,056	848	14	15	138,525
L-19	-	-	-	-	1,073	202	1,073	202	100	100	7,063
L-20	-	-	-	-	5,298	1,289	5,298	1,289	100	100	22,545
L-21	-	-	-	-	11,891	1,878	11,891	1,878	100	100	98,324
L-22	61,483*	6,654	52,201*	6,275	13,107	1,609	65,308*	7,884	20	20	1,403,545

1/ Concentrations are expressed in micrograms/cubic meter (ug/m^3).
* Highlights those road links that exceed the standard for carbon monoxide concentrations.
The standards for carbon monoxide concentrations are:
1-Hour Averaging Time = 40,000 ug/m^3
8-Hour Averaging Time = 10,000 ug/m^3

SOURCE: U.S. Army Corps of Engineers.

TABLE A-6

NOVATO CENTER ALTERNATIVES #1, #2R, AND #3

LINE SOURCE IMPACT CONCENTRATION 1/ FOR 1-HOUR AVERAGING TIME
SENSITIVE RECEPTORS: CARBON MONOXIDE

ROAD LINK	1978 DISTANCE IN METERS 5	1978 DISTANCE IN METERS 20	1978 DISTANCE IN METERS 100	1982 WITHOUT PROJECT DISTANCE IN METERS 5	1982 WITHOUT PROJECT DISTANCE IN METERS 20	1982 WITHOUT PROJECT DISTANCE IN METERS 100	1982 PROJECT ONLY DISTANCE IN METERS 5	1982 PROJECT ONLY DISTANCE IN METERS 20	1982 PROJECT ONLY DISTANCE IN METERS 100	1982 WITH PROJECT DISTANCE IN METERS 5	1982 WITH PROJECT DISTANCE IN METERS 20	1982 WITH PROJECT DISTANCE IN METERS 100
L-1	4,384	3,277	2,337	3,440	2,572	1,833	-	-	-	3,440	2,572	1,833
L-2	43,837*	32,770	23,363	37,219	27,823	19,836	9,345	6,986	4,981	45,564*	34,809	24,817
L-3	-	-	-	-	-	-	937	700	499	937	700	499
L-4	1,461	1,092	779	1,274	952	679	-	-	-	1,274	952	679
L-5	4,018	3,003	2,142	3,058	2,286	1,630	-	-	-	3,058	2,286	1,630
L-6	6,212	4,643	3,311	4,843	3,620	2,581	311	233	166	5,154	3,853	2,747
L-7	7,308	5,462	3,895	5,607	4,192	2,988	775	579	413	6,382	4,771	3,401
L-8	8,404	6,281	4,480	6,500	4,859	3,464	1,401	1,048	747	7,901	5,907	4,211
L-9	1,095	818	583	1,019	762	543	-	-	-	1,019	762	543
L-10	4,932	3,686	2,629	3,696	2,763	1,969	621	464	332	4,317	3,227	2,301
L-11	2,740	2,048	1,460	2,166	1,619	1,154	-	-	-	2,166	1,619	1,154
L-12	547	409	291	382	285	203	1,605	1,201	856	1,987	1,486	1,059
L-13	43,837*	32,770	23,363	37,219	27,823	19,836	9,345	6,986	4,981	46,564*	34,809	24,817
L-14	5,479	4,096	2,920	4,078	3,048	2,173	500	374	266	4,578	3,422	2,439
L-15	-	-	-	-	-	-	4,766	3,563	2,540	4,766	3,563	2,540
L-16	912	682	486	764	571	407	1,667	1,246	888	2,431	1,817	1,295
L-17	37,992	28,400	20,248	32,120	24,011	17,119	3,274	2,447	1,744	35,394	26,458	18,863
L-18	4,931	3,686	2,628	3,696	2,763	1,969	621	464	332	4,317	3,227	2,301
L-19	-	-	-	-	-	-	765	572	408	765	572	408
L-20	-	-	-	-	-	-	3,777	2,823	2,013	3,777	2,823	2,013
L-21	-	-	-	-	-	-	8,478	6,337	4,518	8,478	6,337	4,518
L-22	43,837*	32,770	23,363	37,219	27,823	19,836	9,345	6,986	4,981	46,564*	34,809	24,817

1/ Concentrations are expressed in micrograms/cubic meter (ug/m^3).
* Highlights those road links that exceed the standard for carbon monoxide concentrations.
The Standard for 1-Hour Concentration = 40,000 ug/m^3.

SOURCE: U.S. Army Corps of Engineers.

TABLE A-7

NOVATO CENTER ALTERNATIVES #1, #2R, AND #3

LINE SOURCE IMPACT CONCENTRATION 1/ FOR 8-HOUR AVERAGING TIME
SENSITIVE RECEPTORS: CARBON MONOXIDE

ROAD LINK	1978 DISTANCE IN METERS 5	20	100	1982 WITHOUT PROJECT DISTANCE IN METERS 5	20	100	1982 PROJECT ONLY DISTANCE IN METERS 5	20	100	1982 WITH PROJECT DISTANCE IN METERS 5	20	100
L-1	702	496	332	586	414	277	-	-	-	586	414	277
L-2	4,451	3,147	2,102	4,197	2,968	1,982	1,077	761	509	5,274	3,729	2,491
L-3	-	-	-	-	-	-	217	153	102	217	153	102
L-4	274	193	129	230	162	108	-	-	-	230	162	108
L-5	717	507	339	600	424	283	-	-	-	600	424	283
L-6	917	648	433	766	541	361	52	37	25	818	578	386
L-7	1,189	840	562	994	703	469	131	92	62	1,125	795	531
L-8	1,243	879	588	1,040	735	491	234	166	111	1,274	901	602
L-9	220	156	104	178	126	84	-	-	-	178	126	84
L-10	564	399	266	480	339	226	87	62	41	567	401	267
L-11	578	409	273	483	341	228	-	-	-	483	341	228
L-12	81	57	38	68	48	32	229	162	108	297	210	140
L-13	4,451	3,147	2,102	4,197	2,968	1,982	1,077	761	509	5,274	3,729	2,491
L-14	516	365	243	446	315	210	140	99	67	586	414	277
L-15	-	-	-	-	-	-	781	552	369	781	552	369
L-16	99	70	47	84	60	40	229	161	107	313	221	147
L-17	3,868	2,735	1,827	3,648	2,579	1,723	337	267	178	4,025	2,946	1,901
L-18	564	399	266	480	339	226	87	62	41	567	401	267
L-19	-	-	-	-	-	-	135	95	64	135	95	64
L-20	-	-	-	-	-	-	862	609	407	862	609	407
L-21	-	-	-	-	-	-	1,256	888	593	1,256	888	593
L-22	4,451	3,147	2,102	4,197	2,968	1,982	1,077	761	509	5,274	3,729	2,491

1/ Concentrations are expressed in micrograms/cubic meter (ug/m^3).

The Standard for 8-Hour Concentration = 10,000 ug/m^3.

SOURCE: U.S. Army Corps of Engineers.

TABLE A-8

NOVATO CENTER ALTERNATIVES #1, #2R, AND #3

AREA SOURCE AND REGIONAL AIR QUALITY IMPACTS FOR 1982

CONTAMINANT	AIR QUALITY STANDARD AVERAGING TIME	AIR QUALITY STANDARD (ug/m^3)	EMISSIONS Background Project Total	AREA SOURCE IMPACTS (ug/m^3) UTM GRID COORDINATES 1/ 4214539	4215538	4215539	4216538	REGIONAL IMPACT (ug/m^3)
Carbon Monoxide	1-Hour	40,000	Background	10,962	8,251	2,265	8,930	
			Project	3,364	4,522	3,530	1,732	0.8767
			TOTAL	14,326	12,773	5,795	10,662	
	8-Hour	10,000	Background	6,003	4,518	1,241	4,890	
			Project	1,842	2,476	1,933	948	0.6136
			TOTAL	7,845	6,994	3,174	5,838	
Hydrocarbons	3-Hour	160	Background	683*	530*	182*	578*	
			Project	193*	257*	193*	96	0.0542
			TOTAL	876*	787*	375*	674*	
Nitrogen Dioxide	1-Hour	470	Background	919*	680*	778*	677*	
			Project	152	188	196	105	0.0712
			TOTAL	1,071*	868*	974*	782*	
	1-Year	100	Background	140*	103*	30	103*	
			Project	23	29	30	16	-
			TOTAL	163*	132*	60	119*	

TABLE A-8
(Cont'd)

NOVATO CENTER ALTERNATIVES #1, #2R, AND #3

AREA SOURCE AND REGIONAL AIR QUALITY IMPACTS FOR 1982

CONTAMINANT	AIR QUALITY STANDARD AVERAGING TIME	AIR QUALITY STANDARD (ug/m^3)	EMISSIONS	AREA SOURCE IMPACTS (ug/m^3) UTM GRID COORDINATES 1/ 4214539	4215538	4215539	4216538	REGIONAL IMPACT (ug/m^3)
Sulfur Dioxide			Background	120	88	25	89	
			Project	33	39	38	22	0.0082
	1-Hour	1,310	TOTAL	153	127	63	111	
			Background	48	36	10	36	
			Project	13	15	13	9	0.0040
	24-Hour	105	TOTAL	61	51	23	45	
			Background	11	8	2	8	
			Project	3	4	3	2	-
	1-Year	80	TOTAL	14	12	5	10	
Suspended Particulate			Background	62	47	18	47	
			Project	14	20	19	11	0.0074
	24-Hour	100	TOTAL	76	67	37	58	
			Background	17	13	5	13	
			Project	4	6	5	3	-
	1-Year	60	TOTAL	21	19	10	16	

1/ Refer to Plate A-1 for locations.

Area source and regional air quality impacts are indicated in this Table as the maximum concentration of air quality standard related contaminants expected to occur during a single year as the result of project-related emissions. Impact calculations are based on simplified manual dispersion calculations and statistical techniques with conservative input values.

* Indicates that concentrations are expected to exceed the standards.

SOURCE: U.S. Army Corps of Engineers.

NOVATO CENTER ALTERNATIVE #5 - H.A.F.B.

TABLE A-9

TRAFFIC VOLUMES IN PROJECT AREA

UTM Grid Square	Link Number	AVERAGE DAILY TRAFFIC VOLUME 1978	1985 Without Project	1985 Project Only	1985 With Project	Peak Hour Traffic
4212541	L-1	85000	114000	0	114000	12500
	L-2	6200	7400	20712	28112	3092*
	L-3	2450	2900	34520	37420	4116*
	L-4	6200	7400	13808	21208	2333*
4211541	L-5	85000	114000	0	114000	12500
	L-6	7000	9400	13808	23208	2553*

*Peak hour traffic was estimated to be 11% of ADT as determined for similar traffic levels in Figure V1-18 of Draft Environmental Impact Statement on Disposition and Use of Federal Surplus Property At Hamilton Air Force Base, Novato, California (DEIS DUFS PHAFB) dated April 1979.

NOTE: The shopping center traffic is estimated at 34,520 based on the Novato Regional Shopping Center (NRSC) EIR, March 1979. Distribution of shopping center traffic is based on p. V1-64 of the DEIS DUFS PHAFB with the following modifications; The State Access Rd. was considered the only access to the shopping center site, L-2 accounts for 60% of the shopping center traffic (57% for U.S. 101 heading south, 2.6% for Ignacio, & .6% for Bel Marin Keys Blvd.).
L-4 and L-6 accounts for 40% of the shopping center traffic (39% for U.S. 101 heading north, and .8% for H.A.F.B. existing).

SOURCE: Draft Environmental Impact Statement on Disposition and Use of Federal Surplus Property At Hamilton Air Force Base, Novato, California, April 1979; and U.S. Army Corps of Engineers

NOVATO CENTER ALTERNATIVE #5 - H.A.F.B.

TABLE A-10

BASIC DATA PERTAINING TO ROADWAYS IN THE PROJECT AREA

UTM Grid Square	Link Number	Roadway	Segment	Link Length (miles)	Average Link Speed* (mph)
4212541	L-1	U.S. 101	Boundary to Boundary	0.40	50
	L-2	Nave Drive	Boundary to State Access Rd.	0.24	20
	L-3	State Access Rd.	Nave Dr. to Project Site	0.20	20
	L-4	Nave Drive	State Access Rd. to Bdry.	0.20	20
4211541	L-5	U.S. 101	Boundary to Boundary	0.60	50
	L-6	Nave Drive	Boundary to Boundary	0.64	20

Source: U.S. Army Corps of Engineers

NOVATO CENTER ALTERNATIVE # 5 - H.A.F.B.

TABLE A-11

LINE SOURCE IMPACT
CONCENTRATIONS 1/ AT ROADWAY: CARBON MONOXIDE

	1978		1985						PROJECT ONLY IMPACT ON WITH PROJECT %		TOTAL DAILY EMISSIONS
			WITHOUT PROJECT		PROJECT ONLY		WITH PROJECT				
Road Link	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour	Grams/Day
L-1	96325*	8508	60351*	6936	-	-	60531*	6936	-	-	881904
L-2	8197	1324	4007	850	10921	2377	14928	3227	73	74	225683
L-3	3996	523	2221	333	17651	3962	19872	4295	89	92	250339
L-4	8197	1324	4007	849	7256	1585	11263	2434	64	65	141881
L-5	96325*	8508	60351*	6936	-	-	60351*	6936	-	-	1322856
L-6	7070	1495	4442	1079	7884	1584	12326	2663	64	59	496836

1/ Concentrations are expressed in micrograms/cubic meter (ug/m^3).

* Highlights those road links that exceed the standard for carbon monoxide concentrations.
The standards for carbon monoxide concentrations are:
1-Hour averaging time = 40,000 ug/m^3
8-Hour averaging time = 10,000 ug/m^3

Source: U. S. Army Corps of Engineers

NOVATO CENTER ALTERNATIVE #5 - H.A.F.B.

TABLE A-12

CONCENTRATION 1/ FOR 1-HOUR AVERAGING TIME
SENSITIVE RECEPTORS: CARBON MONOXIDE

	1978			1985								
				Without Project			Project Only			With Project		
	Distance In Meters			Distance In Meters			Distance In Meters			Distance In Meters		
Road Link	5	20	100	5	20	100	5	20	100	5	20	100
L-1	68680*	51341*	36603	43030*	32167	22923	-	-	-	43030*	32167	22933
L-2	5844	4369	3114	2857	2136	1523	7786	5820	4149	10643	7956	5672
L-3	2849	2129	1518	1583	1184	844	12585	9407	6707	14168	10591	7551
L-4	5844	4369	3114	2857	2141	1522	5173	3862	2757	8030	6003	4279
L-5	68680*	51341*	36603	43030*	32167	22933	-	-	-	43030*	32167	22933
L-6	5040	3768	2686	3167	2367	1688	5621	4202	2995	8788	6569	4683

1/ Concentrations are expressed in micrograms/cubic meter (ug/m^3).

* Highlights those road links that exceed the standard for carbon monoxide concentrations. The standard for 1-hour concentration = 40,000 ug/m^3.

Source: U.S. Army Corps of Engineers

NOVATO CENTER ALTERNATIVE #5 - H.A.F.B.

TABLE A-13

CONCENTRATION 1/ FOR 8-HOUR AVERAGING TIME
SENSITIVE RECEPTORS: CARBON MONOXIDE

	1978			1985								
				Without Project			Project Only			With Project		
	Distance In Meters			Distance In Meters			Distance In Meters			Distance In Meters		
Road Link	5	20	100	5	20	100	5	20	100	5	20	100
L-1	5692	4024	2688	4640	3280	2191	-	-	-	4640	3280	2191
L-2	885	626	418	568	402	268	1590	1124	751	2158	1526	1019
L-3	349	247	165	223	157	106	2650	1874	1251	2873	2031	1357
L-4	885	626	418	568	402	269	1060	749	500	1628	1151	769
L-5	5692	4024	2688	4640	3280	2191	-	-	-	4640	3280	2191
L-6	1000	707	472	721	510	341	1060	749	500	1781	1259	841

1/ Concentrations are expressed in micrograms/cubic meter (ug/m^3). The standard for 8-hour concentration = 10,000 ug/m^3.

Source: U.S. Army Corps of Engineers

NOVATO CENTER ALTERNATIVE #5 - H. A. F. B.

TABLE A-14

AREA SOURCE AND REGIONAL AIR QUALITY IMPACTS FOR 1985

Contaminant	Air Quality Standard Averaging Time	Air Quality Standard (ug/m^3)	Emissions Background Project Total	Area Source Impacts (ug/m^3) UTM Grid Coordinates 1/ 4212541	4211541	Regional Impact (ug/m^3)
Carbon Monoxide			Background	277	4744	
			Project	8824	3033	0.7879
	1-Hour	40000	TOTAL	9101	7777	
			Background	152	2598	
			Project	4832	1661	0.5515
	8-Hour	10000	TOTAL	4984	4259	
Hydrocarbons			Background	35	291*	
			Project	540*	186*	0.0531
	3-Hour	160	TOTAL	575*	477*	
Nitrogen Dioxide			Background	28	471*	
			Project	164	90	0.0286
	1-Hour	470	TOTAL	192	561*	
			Background	4	72	
			Project	25	14	-
	1-Year	100	TOTAL	29	86	

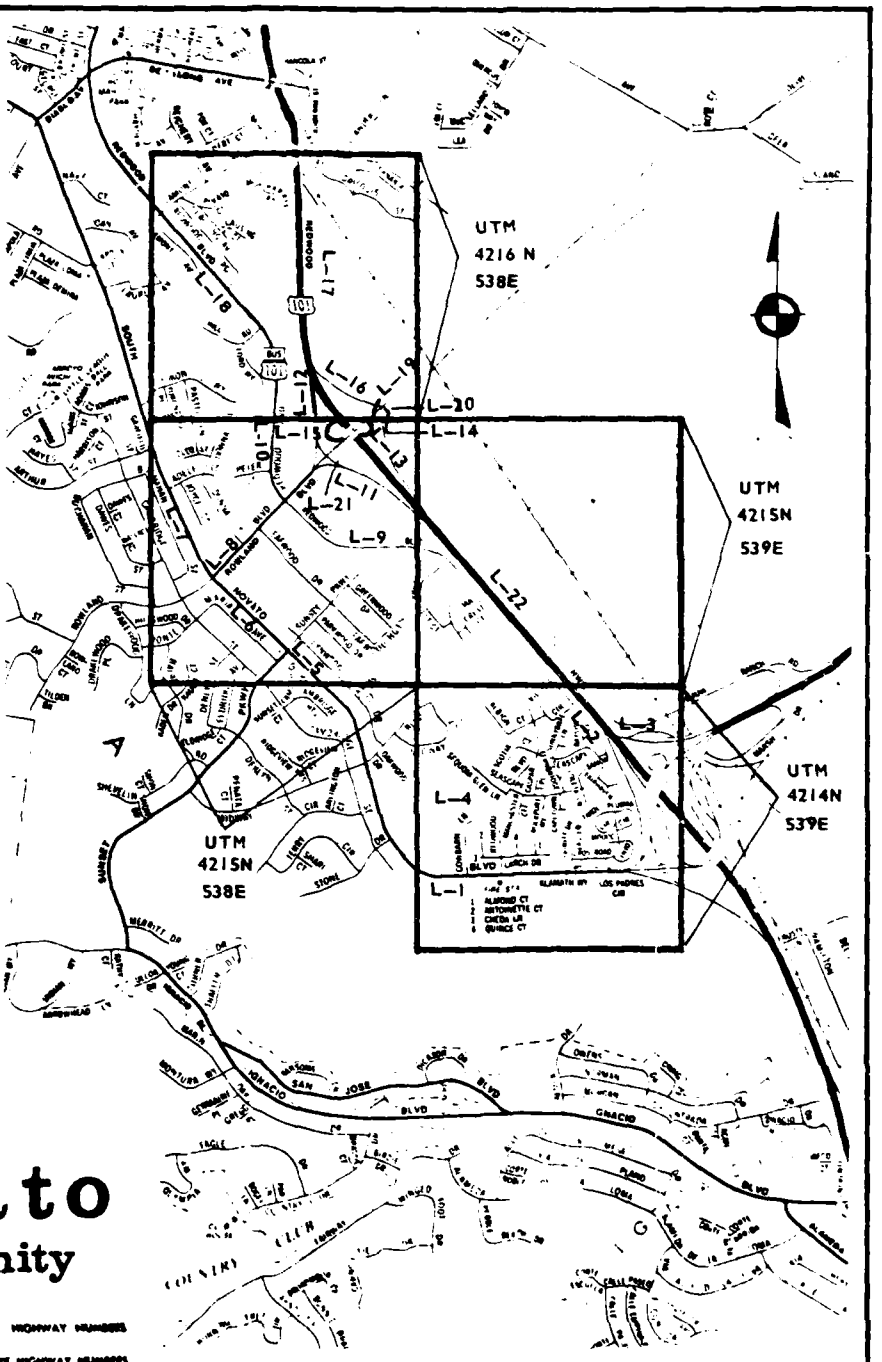
TABLE A-14
(Cont'd)

AREA SOURCE AND REGIONAL AIR QUALITY IMPACTS FOR 1985

Contaminant	Air Quality Standard Averaging Time	Air Quality Standard (ug/m^3)	Emissions Background Project Total	Area Source Impacts (ug/m^3) UTM Grid Coordinates 1/ 4212541	4211541	Regional Impact (ug/m^3)
Sulfur Dioxide			Background	4	81	
			Project	87	28	0.0076
	1-Hour	1310	TOTAL	91	109	
			Background	2	32	
			Project	35	11	0.0045
	24-Hour	105	TOTAL	37	43	
			Background	1	7	
			Project	8	3	-
	1-Year	80	TOTAL	9	10	
Suspended Particulate			Background	3	34	
			Project	33	11	0.0054
	24-Hour	100	TOTAL	36	45	
			Background	1	9	
			Project	9	3	-
	1-Year	60	TOTAL	10	12	

1/ Refer to Plate A-1 for locations.
* Indicates that concentrations are expected to exceed the standards.

Note: Area source and regional air quality impacts are indicated in this Table as the maximum concentration of air quality standard related contaminants expected to occur during a single year as a result of project related emissions. Impact calculations are based on simplified manual dispersion calculations and statistical techniques with conservative input values.



Novato
and Vicinity

LEGEND

FREEWAYS — U S HIGHWAY NUMBERS

EXPRESSWAYS — STATE HIGHWAY NUMBERS

MAIN HIGHWAYS — BLOCK NUMBERS

UNDER CONSTRUCTION

SCALE

ONE KILOMETER = 5/8 MILE

CARTOGRAPHIC DEPARTMENT

CALIFORNIA STATE AUTOMOBILE ASSOCIATION

150 VAN NESS AVENUE SAN FRANCISCO, CALIF.

ENVIRONMENTAL STATEMENT

MARIN COUNTY CALIFORNIA

NOVATO CENTER

LOCATION OF UTM GRID SQUARE AND ROAD SEGMENTS ALTERNATIVES #1–4

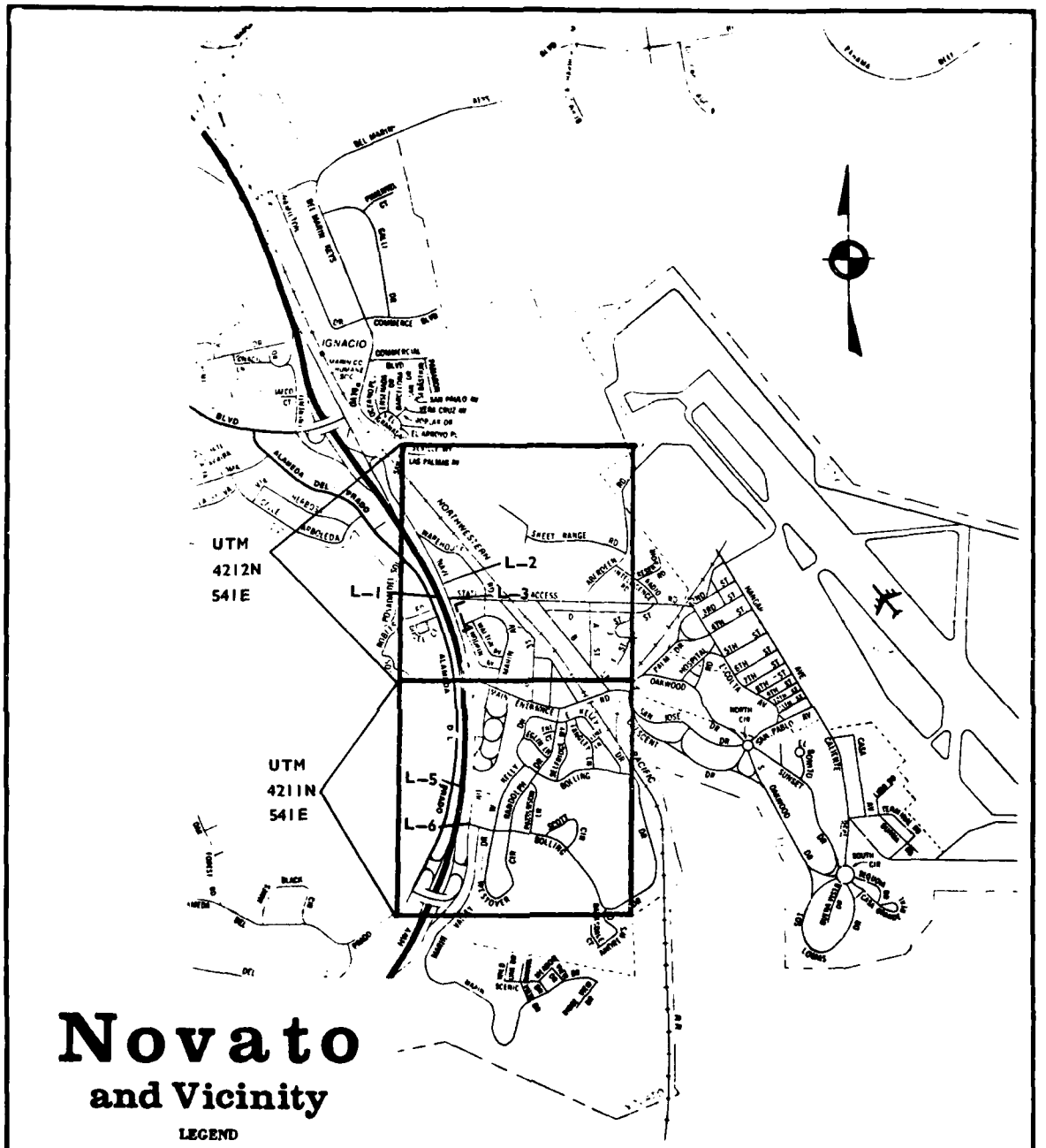
U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E

DRAWN: FILE NO.

TRACED: TO ACCOMPANY REPORT 74-75-1

CHECKED: DATED JULY 1979

PLATE A-1



Novato
and Vicinity

LEGEND

- FREEWAYS (LIMITED ACCESS)
- EXPRESSWAYS
- MAIN HIGHWAYS
- (101) U S HIGHWAY NUMBERS
- STATE HIGHWAY NUMBERS
- (181) BLOCK NUMBERS
- 8800 UNDER CONSTR'N

SCALE

FEET 0 1000 2000 3000 4000 FEET

METERS 0 200 400 600 800 METERS

1 KILOMETER = 5/8 MILE

CARTOGRAPHIC DEPARTMENT

SUPERVISION BY

CALIFORNIA STATE AUTOMOBILE ASSOCIATION

150 VAN NESS AVENUE SAN FRANCISCO, CALIF

ENVIRONMENTAL STATEMENT

MARIN COUNTY CALIFORNIA

NOVATO CENTER

LOCATION OF UTM GRID SQUARE AND ROAD SEGMENTS ALTERNATIVES #5

U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E

DRAWN:
TRACED:
CHECKED:

TO ACCOMPANY REPORT DATED JULY 1979

FILE NO. 74-75-1

PLATE A-2

APPENDIX B

MISCELLANEOUS DOCUMENTS

APPENDIX B
MISCELLANEOUS DOCUMENTS

Murray-McCormick
Civil Engineering Consultants
Engineering Surveying Planning
150 Ford Way, Novato,
CA 94947 • (415) 897-7175
Houston Atlanta Oakland
Albuquerque Sacramento

October 6, 1977
File: 759-011

Department of the Army
Corps of Engineers
211 Main Street
San Francisco, Ca 94105

Attn: Permit Processing

Subject: Fill Permit, Hanna Ranch, Novato
(Ref. No. 10138-33)

Gentlemen:

Submitted herewith for permit processing is an application, drawings and prints of the proposed grading plan as supplemental reference.

Yours very truly,

MURRAY-McCORMICK, INC.

Keith Hastings

Keith Hastings

KH/mr

Enclosures

DOCUMENT B-1

B-1

APPLICATION FOR A DEPARTMENT OF THE ARMY PERMIT

One set of original drawings and two copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and checklist).

1. Application number (To be assigned by Corps).	2. Date.	3. For official use only.
10138-33	5 Oct. 1977 (Day / Mo. / Yr.)	DATE RECEIVED: 7 OCT 77

4. Name and address of applicant.

Owner: Novato Center, Inc.
1290 Howard Avenue
Burlingame, Calif.

Telephone number (415) 347-8535 Social Security No. _____

5. Name, address, and title of applicant's authorized agent for permit application coordination.

Engineer: Murray-McCormick, Inc.
150 Ford Way
Novato, Calif.
Keith Hastings, Proj. Engr.

Telephone Number (415) 897-7175

6. Describe the proposed activity, its purpose and intended use, including a description of the type of structures, if any, to be erected on fills, or pile or float supported platforms, and the type, composition and quantity of materials to be discharged or dumped and means of conveyance.

Fill reclaimed lowlands to predevelopment levels. Top of fill varies 4 to 6 ft. (M.S.L.)
Portion of proposed commercial retail development
Fill quantity is 395,575 C.Y. from proposed lake site northeast of fill site.

7. Proposed use
Private ☐ Public ☐ Commercial ☒ Other ☐ (Explain in remarks)

8. Name and addresses of adjoining property owners whose property also adjoins the waterway.

State of California, Sacramento, Calif.
Northwestern Pacific Railroad, P.O. Box 629, Willits, Ca 95490
McPhails Fuel Co., P. O. Box 1290 San Rafael, Ca 94902

9. Location where proposed activity exists or will occur.

Sec. _____ Twp. _____ Rge. _____ (Where applicable)

Calif. (State) Marin (County) Novato (or City or Town) (Near City or Town)

10. Name of waterway at location of the activity: Lynwood Slough near Novato Creek

ENG FORM 4345 1 APR 74 REPLACES ENG FORMS 4345 AND 4345-1 (PART B) JUN 71 WHI... B-2 ...MAY 71 ...CTE (EP 1145-2-303)

11. Date activity is proposed to commence. upon approval of all permits

Date activity is expected to be completed 6 mo. after start - depending on season

12. Is any portion of the activity for which authorization is sought now complete? Yes ☐ No ☒
If answer is "Yes" give reasons in the remarks section. Month and year the activity was completed _____. Indicate the existing work on the drawings.

13. List all approvals or certifications required by other Federal, interstate, state or local agencies for any structures, construction, discharges, deposits or other activities described in this application.

Issuing Agency	Type Approval	Identification No.	Date of Application	Date of Approval
State Fish & Game	Fill permit		9-26-77	
U.S. Fish & Wildlife	Approval to Corps		9-26-77	
City of Novato	Fill & Use Permit		10-5-77	
City of Novato	Project E.I.R.		9-73	12-13-74

14. Has any agency denied approval for the activity described herein or for any activity directly related to the activity described herein? Yes ☐ No ☒ (If "Yes" explain in remarks)

15. Remarks (see paragraph 3 of Permits Pamphlet for additional information required for certain activities).

16. Application is hereby made for a permit or permits to authorize the activities described herein. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief such information is true, complete and accurate. I further certify that I possess the authority to undertake the proposed activities.

RECEIVED 7 OCT 1977 CONST OP DIV REG FUNC BR

Signature of Applicant

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than five years, or both.

The application must be signed by the person who desires to undertake the proposed activity; however, the application may be signed by a duly authorized agent if accompanied by a statement by that person designating the agent and agreeing to furnish upon request, supplemental information in support of the application.

If the activity includes the discharge of dredged or fill material in navigable waters or the transportation of dredged material for the purpose of dumping it in ocean waters, application must be accompanied by a fee of $100 for quantities exceeding 2500 cubic yards and $10 for quantities 2500 cubic yards or less. Federal, State and local governments are excluded from this requirement.

DEPARTMENT OF THE ARMY
SAN FRANCISCO DISTRICT, CORPS OF ENGINEERS
211 MAIN STREET
SAN FRANCISCO, CALIFORNIA 94105

SPNCO-RN 27 January 1978

PUBLIC NOTICE NO. 10138-33 RESPONSE REQUIRED BY 26 February 197

TO WHOM IT MAY CONCERN:

1. Novato Center Inc., Richard Hanna, President, 1290 Howard Avenue, Burlingame, California 94010, through its agent Murray-McCormick Inc., 150 Ford Way, Novato, California 94947 (telephone 415-897-7175), has applied for a Department of the Army permit to fill about 56 acres of lowland and slough, including the retention of partial fill placed on about 12 acres, for future land development, to excavate for fill material and create a lake of about 37 acres, and to retain landfill placed on about 53 acres of lowland at Ivanwood Slough, Novato Creek, south of the city of Novato, Marin County, California. The vicinity map, plan and section of the proposed activity are shown on the inclosed drawing. This application has been submitted pursuant to the provisions of Section 10 of the River and Harbor Act of 1899 (33 U.S.C. 403; 30 Stat. 1151) and Section 404 of the Federal Water Pollution Control Act Amendments of 1972 (PL 92-500, 33 U.S.C. 1344; 86 Stat. 816).

2. The applicant states that the purpose of the proposed activity is to fill low-lying slough areas of his property to make it suitable for commercial and/or industrial site developments in the future. The property is bounded by Highway 101 on the west, Novato Creek on the north, the Northwestern Pacific Railroad on the east and Highway 37 on the south. The proposed excavation and lake would be on State lands to the east. In accordance with terms of the legal agreement between Novato Center and the State of California, Novato Center obtained easement rights from the State to cover the proposed excavation. These activities take place on reclaimed tidelands under the Corps jurisdiction and have been used as agricultural land until recently. The city of Novato has zoned the northern portion of the Hanna property as commercial, and the southern portion as light industrial. The applicant has not yet finalized development plans for his property and may request a zone change from the city of Novato.

3. The proposed fill of approximately 395,575 cubic yards would be placed on about 56 acres of the property and is indicated by shading on the drawing; it includes about 12 acres of agricultural land on which some fill has been placed and about 8 acres of a seasonal brackish marsh (the modified slough). The applicant proposes the lake as compensation for the habitat loss in the slough. The 53 acres of completed fill are a part of Ivanwood Slough and shown as "Area Filled" on the drawing.

According to the applicant, the filling had started about July 1972 in connection with State construction work on Highway 101. It has been determined that no legal action would be taken at this time with regard to the completed fill and an after-the-fact application would be processed. Final drainage plans for Lynwood Slough would be made in conjunction with the final development plan of the applicant, either covered or open drain would be used, all as approved by the Marin County Flood Control and Water Conservation District. The proposed excavation of the 37-acre lake would yield about 500,000 cubic yards of fill material which would be placed and compacted for the required landfill. Depth of the lake would be about 12 feet below existing ground.

4. The applicant has applied to the California Department of Fish and Game and to the city of Novato for authorizations as required and was advised to inquire as to the need for certification from the California Regional Water Quality Control Board, San Francisco Bay Region.

5. In accordance with the requirements of the National Environmental Policy Act of 1969 (Public Law 91-190), the Corps of Engineers has made a preliminary assessment of the environmental, engineering, economic, and social aspects of the proposed activity, and determined that an Environmental Impact Statement (EIS) will be necessary. These aspects will be discussed in detail in the EIS. Requests for copies of the draft EIS should be submitted in writing and directed to the attention of the Environmental Branch of this office, at the address given above. The activity does not involve property listed in the National Register of Historic Places, or Registry of National Landmarks.

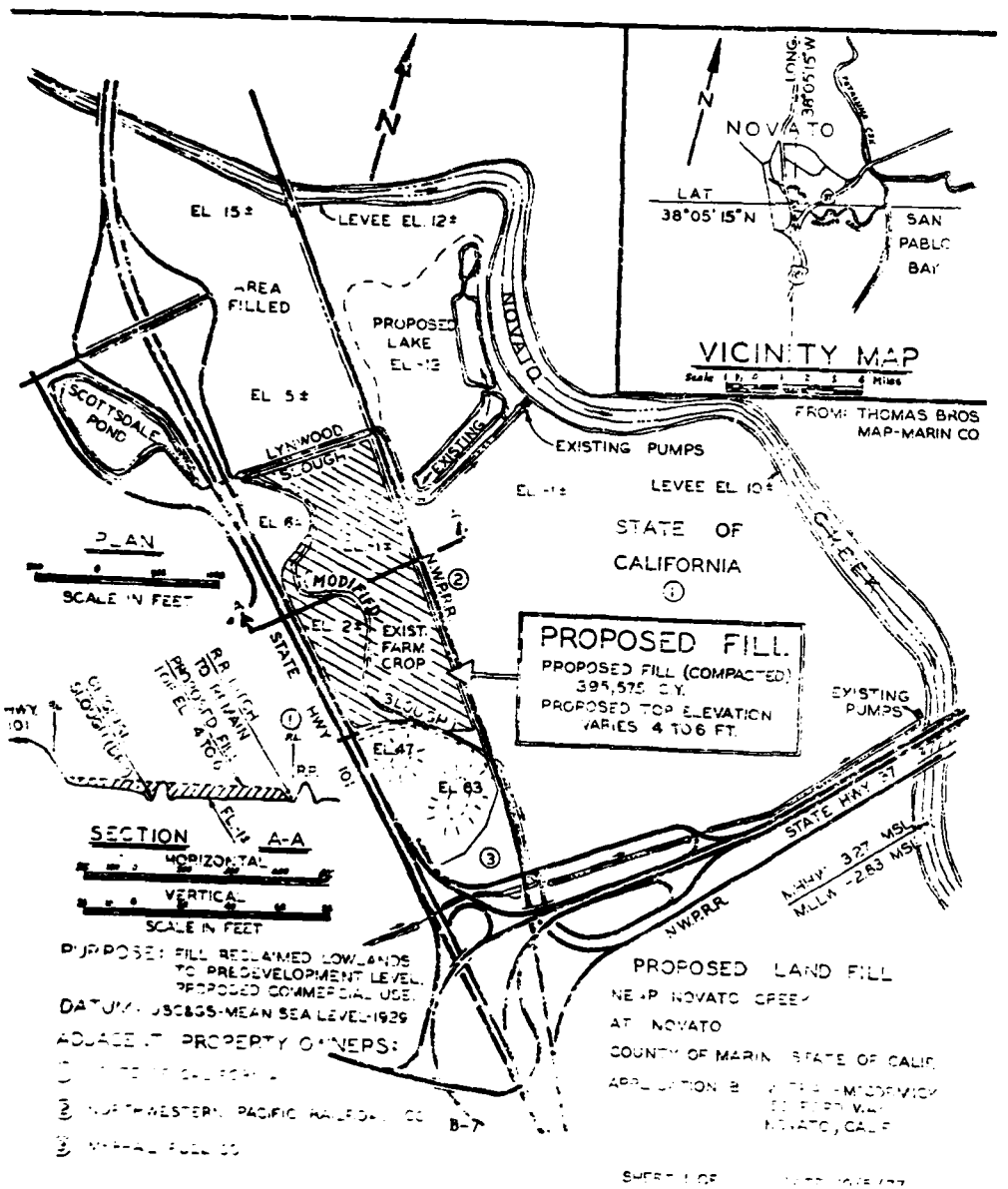
6. A permit issued by the Department of the Army does not give any property rights either in real estate or materials, or any exclusive privileges; and does not authorize any injury to private property or invasion of private rights, or any infringement of Federal, State, or local laws or regulations, nor does it eliminate the necessity of obtaining State assent to work authorized. The decision by the Corps of Engineers whether to issue a permit will be based on an evaluation of the probable impact of the activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered; among those are conservation, economics, aesthetics, general environmental concerns, historic values, fish and wildlife values, flood damage prevention, land use, navigation, recreation, water supply, water quality, energy needs, safety, food production and, in general, the needs and welfare of the people.

7. Evaluation of this activity's impact on the public interest will also include application of the guidelines promulgated by the Administrator of the Environmental Protection Agency under Section 404(b) of the Federal Water Pollution Control Act of 1972, 33 U.S.C. Section 1344(b), and (if applicable) Section 102(a) of the Marine Protection, Research, and Sanctuaries Act of 1972, 33 U.S.C. Section 1412(a). Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reason for holding a public hearing.

8. Interested parties may submit in writing any comments that they may have on this activity. Comments should include the number and date of this notice and should be forwarded so as to reach this office within the commenting period. It is the Corps policy to forward any such comments which include objections to the applicant for resolution or rebuttal. Details on any changes of a minor nature which are made in the final permit action will be provided on request.

JOHN M. ADSIT
Colonel, CE
District Engineer

10138 - 33



SHEET 1 OF

OFFICE OF THE SECRETARY
RESOURCES BUILDING
14TH AND H STREET
95814

(916) 445-5656

Department of Conservation
Department of Fish and Game
Department of Forestry
Department of Navigation and Ocean Development
Department of Parks and Recreation
Department of Water Resources

EDMUND G. BROWN JR.
GOVERNOR OF CALIFORNIA

Air Resources B
California Coast
California Conse
Colorado River
Energy Resourc
Developme
Regional Water
San Francisco B
Developme
Solid Waste Ma
State Coastal Co
State Lands Co
State Reclamati
State Water Res

THE RESOURCES AGENCY OF CALIFORNIA
SACRAMENTO, CALIFORNIA

Colonel John M. Adsit
District Engineer
San Francisco District
U. S. Army Corps of Engineers
211 Main Street
San Francisco, CA 94105

AUG 23 1

State Review and Comment
Public Notice No. 10138-33 (Richard Hanna)
Proposal to place fill on wetlands at Lynwood Slough, Novato Creek, Marin County

Dear Colonel Adsit:

In a letter dated March 1, 1978, the State requested that t Corps withhold issuance of the requested permit. Subsequer additional information has been received. A negotiated wri agreement was reached between the applicant and the State, to development of the State's Wetlands Policy, and as a re the State does not object to your issuance of the subject p

Sincerely,

L. FRANK GOODSON
Assistant Secretary for Reso

cc: Department of Navigation and Ocean Development
Department of Parks and Recreation
State Water Resources Control Board
Department of Fish and Game
Wildlife Conservation Board
Department of Water Resources
Department of Health
Department of Conservation
Division of Hi
San Francisco
vation and D
Commission
State Lands Di
Bureau of Spor
and Wildlife
Mr. Gerald V.
Applicant - Ri

United States Department of the Interior

FISH AND WILDLIFE SERVICE

DIVISION OF ECOLOGICAL SERVICES
2800 Cottage Way, Room E-2727
Sacramento, California 95825

February 9, 1978

Colonel John M. Adsit
District Engineer
San Francisco District, Corps of Engineers
211 Main Street
San Francisco, California 94105

RE: PN 10138-33
Novato Center, Inc.
Lynwood Slough, Novato Creek

Dear Colonel Adsit:

We have reviewed the referenced public notice dated January 27, 1978, concerning an application to retain 53 acres of illegally placed fill and to fill an additional 56 acres of former tidelands including approximately 9 acres of viable fresh and brackish water marsh adjacent to Novato Creek, Novato, Marin County, California.

These preliminary comments have been prepared under the authority of and in accordance with the provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.) and other authorities mandating Department of Interior concern for environmental values. They are also consistent with the intent of the National Environmental Policy Act.

In the San Francisco Bay area much of the surrounding tidal marsh has been destroyed through human activities. The small amount remaining is of great importance to many species of fish, waterfowl and shorebirds. Freshwater marshes are in critically short supply. Historically, such marshes were found adjacent to many of the small streams entering the bay. As these areas have been developed, the freshwater marshes have been reduced almost to the vanishing point. One of their important values is as a water source for migratory and breeding birds. While the adults of certain migratory species, notably pintail and mallard, can tolerate brackish water, their young cannot. These marshes in their natural conditions also serve as feeding and nursery areas for anadromous fishes. Their value for open space cannot be overestimated.

Personnel from this office visited the site on October 10, 1977, prior to the areas receiving any rain and found the marsh vegetation green and in good condition. Apparently upland runoff is adequate to maintain this area through a two-year drought.

We note that Corps of Engineers' permit regulations (Paragraph 320.4 (b)(4)) state that "The District Engineer shall consider whether the proposed activity is primarily dependent on being located in or in close proximity to the aquatic environment and whether feasible alternative sites are available. The applicant must provide sufficient information on the need to locate the proposed activity in the wetland and must provide data on the basis of which the availability of feasible alternative sites can be evaluated."

The project description contained in the public notice indicates no need for this activity to be located in a wetland area.

The public notice also states that the applicant has filled 65 acres of lands within Corps of Engineers' jurisdiction. We request that you send us such data as is available, including aerial photographs, surveys, etc., so we can evaluate the extent of the wildlife resources which have been destroyed and for which compensation in kind will be requested.

Based on the information available at the present time, the Fish and Wildlife Service will object to the issuance of the requested permit. We will submit final comments on this project after receipt and review of the final Environmental Impact Statement.

Sincerely yours,

Felix E. Smith
Field Supervisor

cc: Area Mgr., FWS, Sacramento
NMFS, Tiburon
EPA, San Francisco
Dir., CDF&G, Sacramento
Reg. Mgr., Reg. III, CDF&G, Yountville
SF BCDC, San Francisco
CRWQCB, Oakland
CA State Resources Agency, Sacramento
(Attn: Frank Goodson)
Marin Audubon Society, Tiburon
Novato Center Inc., Burlingame
(Attn: Richard Hanna)

Save Energy and You Serve America!

Incl 2

M&M Consultants
Engineers, Planners & Surveyors
150 Ford Way
Novato, California
94947
Telephone
415 897 7175

June 1, 1979
File: 751-020

Mr. Jack Jensen
E. W. Hahn, Inc.
200 Continental Boulevard
El Segundo, CA 90245

Subject: Wildlife Plan, Novato Regional Shopping Center

Dear Jack:

Pursuant to your request, the following is a description and report on the status of the Wildlife Plan as proposed by E. W. Hahn, Inc., as mitigation for the loss of wildlife habitat resulting from the Novato Regional Shopping Center. The Wildlife Plan describes features to be located on the State-owned land (278± acres) which has been leased to the Department of Fish and Game (DFG) for the purpose of wildlife management. The State Lands agreement, which was a boundary and title settlement, stipulated that the permitted excavation be conducted according to plans and specifications of the State. DFG indicated their requirements in their memo to the State Lands Department dated May 17, 1976. These requirements pertained to the shape, depth of water, and bank slope for the proposed 37-acre lake. There was also a requirement for the installation of water control structures to allow tidal action to the lake from Novato Creek (EIR, page 78). The location and purpose of the water control structures, now to be located in the southerly portion of the property, were modified by DFG by their memo to the State Resources Agency dated June 30, 1978. DFG states in their DEIR comment letter dated April 18, 1978, "If these compensation measures are made a part of the project, the adverse impacts to fish and wildlife will be mitigated."

We have met with DFG personnel and discussed their plans for the State property. Basically, they have a 66 year lease, which is subject to an existing hay lease that will expire on September 1, 1980, for the purpose of wildlife management. They plan to prepare a wildlife management program in the future for the long-range goals for the wildlife area. They indicated that it could take a number of years to implement any of the features they plan to include in the management program.

In our meetings with DFG, we have suggested certain features consistent with their plans to be completed at this project's

expense to expedite and enhance the wildlife habitat values. We have engaged the services of several consultants, who specialize in wildlife and marsh restoration, for assistance in evaluating the beneficial values of our proposed features.

The features proposed to date by Hahn as part of this project include the completion of the excavation of the lake to DFG specifications with mutually acceptable modifications required by other agencies, such as Marin/Sonoma Mosquito Abatement District. The lake plan, figure 5 in the EIR, was originally prepared in July 1972 for grading permit purposes. The initia pond excavation, which took place between August and November 1974, reflects an intermediate construction stage which does not represent the final proposed slope bank requirements. DGF has expressed concern regarding the high fluctuation levels that the lake will be exposed to resulting from storm inflow (high levels) and the pumping into Novato Creek by the flood control pumps (low levels) in their DEIR response dated April 18, 1979. As an enhancement to the vegetative and related wil life value for the lake, more constant water levels are propos by modifying the lake plan to be independent from the existing Lynwood Slough leading to the flood control pumps. This is proposed to be accomplished by leaving the existing earth berm separating the ponds from the channel and constructing water control devices (weirs) near the railroad culverts and near th flood control pumps. These control devices would allow storm inflow and outflow during higher runoff flows in the channel, and would hold the lake at a predetermined level after the cha nel has been drained by the pumps. In this manner, the fresh water lake can start the summer season with a higher level. The lake level and desired depths will be subject to evaporati losses during the dry months.

It is not intended to introduce treated wastewater as a supple mentary water supply, as the lake will be maintained at a more stable level with this proposal. The strict regulations and continued monitoring required by the Regional Water Quality Control Board to introduct treated wastewater would result in additional expense to the public that would be unnecessary from the standpoint of maintaining a more constant lake level.

Also being introduced to the design of the lake are three low-level islands for the protection of birdlife habitat from predators. These islands will also act as a mitigating feature to reduce the possible Seiche effects (periodic oscillations of water caused by earthquake-induced ground shaking, EIR, page 38) by breaking the body of water with obstacles and reducing the wave run lengths.

The lake features mentioned above are beyond the mitigating requirements of DFG and are proposed as a part of the shopping center project as further wildlife mitigation.

The water control structure installation in the southerly portion of the property, as requested by DFG, is also proposed as part of this project. DFG envisions the southerly portion of the property as a marsh habitat (DFG memo dated June 3, 1978) by the creation of channels connecting the inlet and outlet water control devices. At the request of DFG and at Hahn's expense, we are preparing a Hydraulic Study to determine the feasibility of such a proposal, given the low land and tidal conditions in Novato Creek.

We are far enough along with the study that it appears feasible as far as a sample system design. When the study is complete, it will be sent to DFG for review, acceptance, and use in planning the channel portion of their management plan. The intent at this time is to convey a controlled amount of tidal (brackish) flow through the channels, at very low velocities which will provide a constantly moving flow, allowing the area to naturally develop into a marsh habitat.

In addition to the requested water control structures, we are proposing, as a part of this project, to excavate a feeder ditch at the inlet location (1000 feet) and extend the collector ditch at the outlet (1400 feet) westerly to the PG&E power line for the purpose of securing a greater area of the wildlife preserve area from trespassing. Presently, people can park along the fromtage road, step over the fence, and enter the property. Total security of the inner areas will not be achieved until the interior channels are completed.

According to reports, there is evidence of fairly intense use of firearms in the area around the present ponds. The protection of the wildlife preserve area is proposed to be increased by the installation of a fence separating the shopping center project along the railroad right-of-way adjacent to the project. This will serve to keep the general public in the project area from entering the wildlife preserve area as well as the railroad property.

Please keep in mind that the features mentioned above, being in addition to the required features, are subject to acceptance by DFG; however, the features noted have been discussed with them and there has been a positive response. As the wildlife plan and supporting data are reviewed by DFG and others, I am sure there will be modifications before the plan is accepted. We have suggested some additional features which are not included, as they were discouraged during discussions with DFG.

We have met with Marin Audubon Society on several occasions to explain the plan to date and hear their input and comments. We have scheduled to meet with Marin/Sonoma Mosquito Abatement people to work on the lake depth and bank slope requirements. U.S. Fish and Wildlife Service has knowledge of this plan and it has been indicated to us that they will not accept any work on the State land as wildlife mitigation; therefore, we have not tried to discuss it further with them.

Please refer to the enclosed plans: (1) Wildlife Plan (Scheme A) No Project - "AS IS," and (2) Wildlife Plan (Scheme B) Project - Proposed Features Identified.

We will keep you advised periodically as to the status of this plan. If there are any questions, please contact us.

Yours very truly,

M & M CONSULTANTS, INC.

Keith Hastings

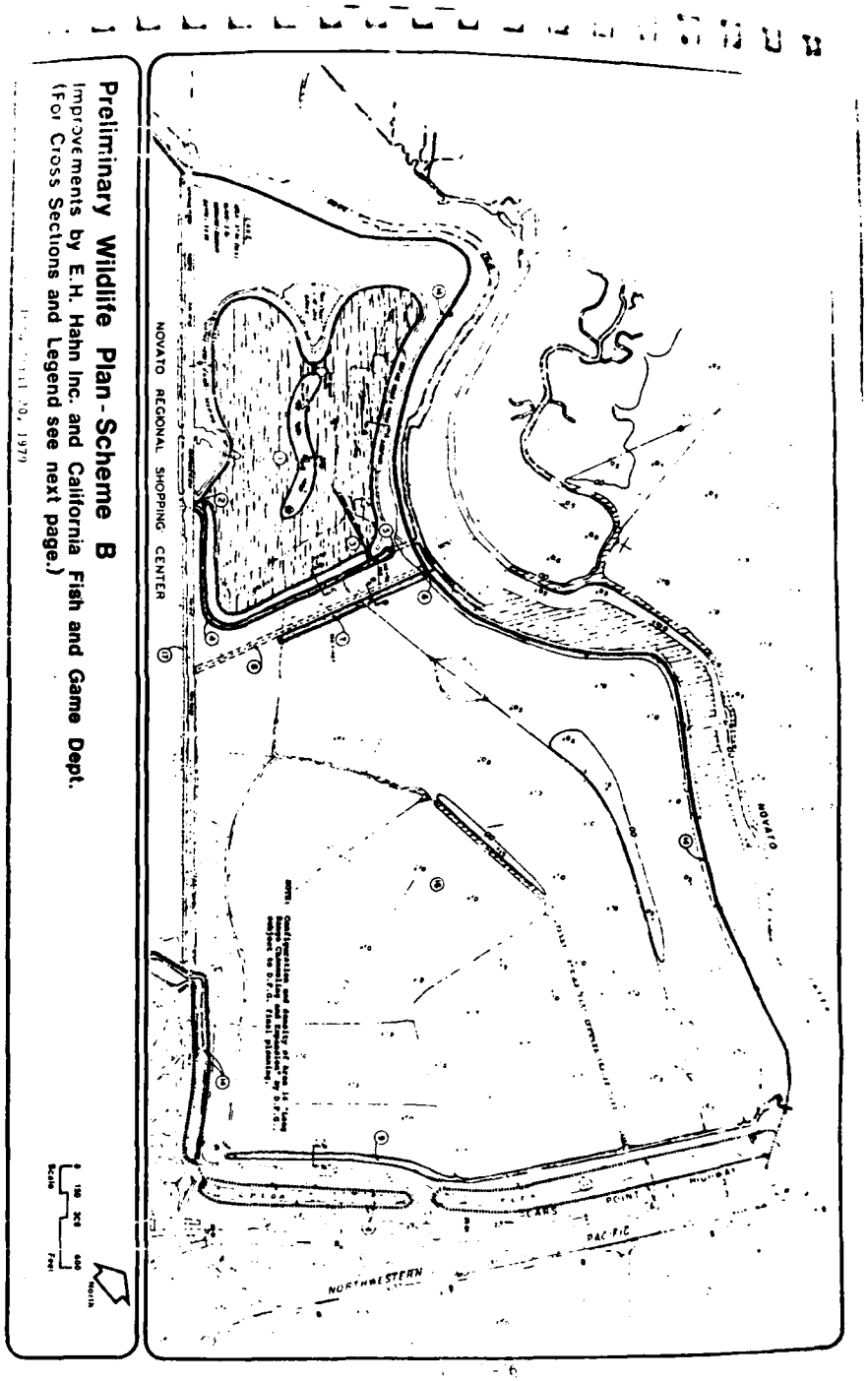
Keith Hastings

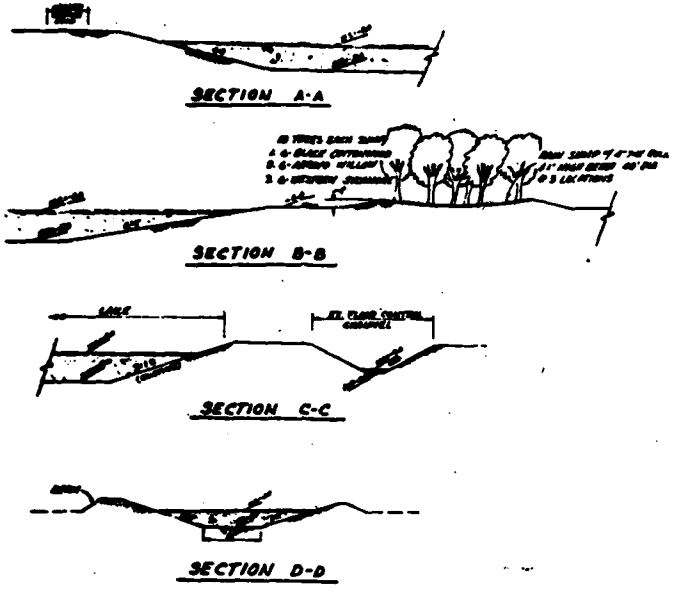
KH/mr

June 1, 1979
File: 751-020

Mr. Jack Jensen
Page 5

cc w/encl: Mr. Paul Portch, U. S. Army Corps of Engineers
Mr. Tom Crews, E.I.P.
Mr. E. V. Toffoli, California Dept. of Fish & Game
Mr. James J. McKevitt, U.S. Fish & Wildlife Service
Mr. Paul Eastman, Marin Audubon Society
Ms. Karen Urquhart, Marin Conservation League





STATE FISH & GAME DEPARTMENT WILDLIFE AREA

270± Acres

1. 37± AC. LAKE W/ISLAND (MAIN)
2. INLET CONTROL STRUCTURE (MAIN)
3. OUTLET CONTROL STRUCTURE (MAIN)
4. LYNWOOD SLOUGH (EXISTING)
5. FLOOD CONTROL PUMP STATION (EXISTING)
6. INLET CONTROL STRUCTURE (MAIN)
7. DITCH (FEEDER) (MAIN)
8. BERM (MAIN)
9. DITCH (SECURITY) (MAIN)
10. OUTLET CONTROL STRUCTURE (MAIN)
11. PRIVATE PUMPS (EXISTING)
12. FLOOD CONTROL PUMP STATION (EXISTING)
13. OUTLET CONTROL STRUCTURES (EXISTING)
14. MAJOR LEVEE (EXISTING)
15. CHEDA CREEK (EXISTING)
16. LONG RANGE CHANNELING AND POND EXPANSION - AFTER 1980 (D.F.G.)
17. NON ACCESS FENCE (OR DITCH PER FINAL DESIGN) (MAIN)

Preliminary Wildlife Plan-Scheme B Cross Sections and Legend

Response Attachment to Comment 5

MS. J. ZAITLIN, CE, SAN FRAI
SPNED-E

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Division of Ecological Services
2800 Cottage Way, Room E-2727
Sacramento, California 95825

January 29, 1980

Colonel John M. Adsit
District Engineer
San Francisco District, Corps of Engineers
211 Main Street
San Francisco, California 94105

Subject: PN 10138-33, Novato Center, California

Dear Colonel Adsit:

At the request of the applicant, Mr. Ernest Hahn, this office consented to conduct a habitat evaluation (HEP) of the project area to quantify existing values and impacts expected as a result of the present proposal. We explained to Mr. Hahn that the outcome of the evaluation would, in no way, affect our recommendations on his application since that was based primarily on policy (nonwater-dependent fills) and not on the relative values of the tradeoffs. We did, however, agree to relay to you the results of our evaluation.

The evaluation was conducted on December 12, 1979 by Joe Tieger, project biologist. The applicant was represented by Dr. Joel Gustafson, Resources and Ecology Project, Inc. The other agencies and participants in the HEP were: Mr. William Leet, National Marine Fisheries Service; Mr. Jim Swanson, California Department of Fish and Game; and Ms. Jody Zaitlin, Corps of Engineers.

Before conducting the HEP, the participants walked the length of Lynwood Slough and observed the area from the oak-covered knoll near the juncture of the slough and the flood control channel. The participants divided the area into three habitat types; slough, riparian, and oat field-fallow land. The evaluation elements were selected to represent organisms which would utilize all areas to some degree. Each of the three habitat types was evaluated on its value for each element. The participants were asked to individually and independently record a numerical score between 1 and 10 for each element. The scores were not discussed among the members of the group. The scores are shown in figures 1-3.

The participants selected only nine evaluation elements. All evaluations were brought to base ten and these adjusted values used for both pre and postproject calculations.

Some slight difficulty was encountered in the calculation of the cumulative habitat units to be lost to the project. This occurred because the large scale map and area calculations provided by the applicant on December 12, 1979 did not delineate the riparian area from the slough itself. As the habitat values of these two areas are close [riparian 56 habitat units (hu)/acre, slough 60 hu/acre], and in the interest of time required to measure these individual areas, the values of these two areas were combined for a net value of 58 hu/acre. This value was used only in the calculation of habitat units lost as a result of filling portions of Lynwood Slough. The value of the wetland area to be created was calculated on the basis of the value of the existing slough, 60 hu/acre.

One assumption used in the evaluation was that the applicant would implement a water management program as part of the project to maximize postproject fish and wildlife values. This was a proposal made by Mr. Hahn to provide compensation should FWS remove its objections to issuance of the permit. The existing slough does not retain significant amounts of ponded water through the summer months. The additional water that would be provided by the proposed plan would be a significant improvement over existing conditions; this improvement was estimated at 25 hu/acre. On this basis, 25 hu/acre was added to the value of the 4.86-acre existing marsh to be retained and was used in describing postproject wildlife values (see figure 4). This additional value was also added to the value of the wetland area that would be created, raising its value to 85 hu/acre. This latter value was also used in the calculation of postproject wildlife conditions (see figure 4).

The results of the HEP indicate that the proposed wetland creation would compensate for approximately one-third of the habitat value to be lost as a result of this project. Specific questions regarding the evaluation should be directed to Mr. Tieger. As we agreed with the applicant, this letter and the results of the HEP are provided for your consideration in making an informed decision on the application.

Sincerely,

James J. McKevitt
Field Supervisor

cc: EPA, San Francisco,
Attn: Mr. Eric Yunker
NMFS, Tiburon
Dir., CDF&G, Sacramento
Reg. Mgr., CDF&G, Reg. III,
Yountville
Applicant
Dr. J. Gustafson, Mill Valley

SLOUGH

EVALUATION ELEMENTS

Evaluator	Insects	Amphibians	Reptiles	Small Mammals	Perching Birds	Ground Birds	Waterfowl	Wading Birds	Raptors		Line Total	Adjusted Line Total
CE	8	7	6	7	7	6	8	8	6		63	70
DFG	8	7	5	6	7	7	5	7	5		57	63
FWS	8	7	4	7	6	5	9	6	5		57	63
Nov. Ctr.	6	6	3	3	5	4	4	4	1		36	40
NMFS	7	8	5	7	5	5	8	8	5		58	64

300 ÷ 5 =
60 hu/acre

=

Figure 1

RIPARIAN ZONE

EVALUATION ELEMENTS

Evaluator	Insects	Amphibians	Reptiles	Small Mammals	Perching Birds	Ground Birds	Waterfowl	Wading Birds	Raptors		Line Total	Adjusted Line Total
CE	6	5	5	5	4	6	6	5	7		49	54
DFG	7	6	6	4	8	7	3	1	6		48	53
FWS	7	6	7	7	9	7	3	3	6		55	61
Nov. Ctr.	6	5	5	8	8	5	4	5	4		50	56
NMFS	7	5	5	5	4	6	5	6	6		49	54

278 ÷ 5 =
56 hu/ac

Figure 2

OAT FIELD AND FALLOW AREA

EVALUATION ELEMENTS

Evaluator	Insects	Amphibians	Reptiles	Small Mammals	Perching Birds	Ground Birds	Waterfowl	Wading Birds	Raptors		Line Total	Adjusted Line Total
CE	5	4	5	5	5	5	1	3	6		39	43
DFG	5	2	5	6	6	6	2	4	7		43	48
FWS	7	2	5	6	6	7	3	2	8		46	51
Nov. Ctr.	5	1	6	8	5	6	1	3	6		41	46
NMFS	5	3	5	6	3	5	2	3	6		38	42

230 ÷ 5 =
46 hu/ac

Figure 3

SUMMARY

Area	Existing Value (hu)		Post Project	Balance
Oat field and fallow field to be filled (19.63 ac)(46 hu)	903		0	-903
Oat field to be turned into marsh (6.82 ac)(46 hu)	314	*(85)	580	+266
Slough and Riparian to be filled (4.65 ac)(58 hu)	270		0	-270
Existing slough enhanced by water management (4.86 ac)(60 hu)	292	*(25)	414	+122
				-1173 +388
hu: habitat units			Balance	- 785 hu

*It is estimated that the existing slough habitat value will increase by 25 hu/acre through the year round ponding of water. This increased value is also reflected in postproject value assigned to the new wetland area.

Figure 4

ERNEST W. HAHN, INC.
800 CONTINENTAL BOULEVARD, EL SEGUNDO, CALIFORNIA 90245 • PHONE (213) 772-4200

August 5, 1980

Colonel Paul Bazilwich
District Engineer
San Francisco District
Corps of Engineers
211 Main Street
San Francisco, CA 94105

Dear Colonel Bazilwich:

RE: NOVATO CENTER ENVIRONMENTAL IMPACT STATEMENT PLAN REVISIONS

The purpose of this letter is to summarize the revisions made to the Plot Plan for Novato Center, and to the plans for on-and offsite mitigation which are part of this project. These revised plans (Exhibit "C"), presented at a meeting with Col. Adsit and representatives of of the Environmental Protection Agency at the Corps of Engineers' San Francisco offices March 7, 1980, have resulted in the removal of objections to the project by EPA and NOAA (National Oceanographic and Atmospheric Administration, U. S. Dept of Commerce) (letters attached).

The revisions included in Exhibit "C" were made primarily in response to concerns expressed by various agencies, groups and individuals. Our response to these concerns resulted in the mitigation measures shown on the following drawings and outlined in the following documents:

1. Wildlife Plan: This plan prepared by M & M Consultants and dated April 20, 1979 (copy attached) describes improvements to the State Lands east of the project site which have been leased to the Department of Fish and Game as a wildlife preserve. A summary of the Wildlife Plan is included in a letter to Jack Jensen of E. W. Hahn, Inc. from Keith Hastings of M & M Consultants, Inc. dated June 1, 1979 (copy attached). This letter is included in the Final EIR in response to a comment from the U. S. Dept. of Interior, Fish & Wildlife Service (letter undated).

2. Ecological Preserve Plan: This plan, also prepared by M & M Consultants, concerns additional land immediately south of the project site which the developer will acquire and dedicate for open space. The area proposed for dedication includes approximately 4.9 acres of existing slough and approximately 6.8 acres of wetland area for a total of approximately 11.7 acres of open space. (Please note the area south of the slough and wetlands is not a part of this proposal.) Also attached is a copy of comments and recommendations regarding the Ecological Preserve Plan prepared by Dr. Joel Gustafson and previously forwarded to Mr. James McKevitt of U. S. Fish and Wildlife Service for review.

3. Traffic: Exhibit "C" shows revisions to the traffic circulation system, particularly the Rowland Blvd./101 Interchange. These changes are in response to comments from various agencies, including Caltrans, and are summarized in letters from Donald Frischer & Associates to Ken Roberts of E. W. Hahn,

Inc. dated March 19 and 21, 1980 (copies attached).

Please note the Wildlife Plan, Ecological Preserve Plan and traffic revisions are all incorporated in Exhibit "C".

Thank you very much for your cooperation in this matter. If you require any additional information, please don't hesitate to call.

Very truly yours,

ERNEST W. HAHN, INC.

Russ Barto
Project Manager
Development Division

RB/fsb

Enclosures

cc: Roger Golden
Dennis Cerese
K. Hastings
J. Campbell
A. Kassen
K. Roberts
B. Mattson
P. Brown
Q. Cook

APPENDIX C

LIST OF SPECIES OBSERVED AT

STUDY AREAS #1-4

PREPARED BY

HARVEY & STANLEY ASSOCIATES, INC.

DECEMBER 1978

LIST OF VASCULAR PLANTS OBSERVED

ANACARDIACEAE Sumac Family

Rhus diversiloba T. & G. Poison-Oak.

CAPRIFOLIACEAE Honeysuckle Family

Symphoricarpos mollis Nutt. Snow-Berry.

CARYOPHYLLACEAE Pink Family

Spergularia marina (L.) Griseb. Marine Sand-Spurrey.

CHENOPODIACEAE Goosefoot Family

Atriplex patula L. ssp. *hastata* (L.) Hall & Clem. Hastate Saltbush.
A. semibaccata R. Br. Australian Saltbush.
Chenopodium album L. Pigweed.
Salicornia pacifica Standl. Pickleweed.

COMPOSITAE Sunflower Family

Agoseris apargioides (Less.) Greene.
Anaphalis margaritacea (L.) Benth. Pearly Everlasting.
Baccharis pilularis DC. ssp. *consanguinea* (DC.) C. B. Wolf. Coyote Brush.
Centaurea solstialis L. Yellow Star-Thistle.
Cirsium arvense (L.) Scop. Canada Thistle.
Conyza canadensis (L.) Cronq. Horseweed.
Cotula coronopifolia L. Brass Buttons.
Gnaphalium luteo-album L. Cudweed.
Hemizonia luzulaefolia DC. ssp. *rudis* (Benth.) Keck. Hayfield Tarweed.
Heterotheca grandiflora Nutt. Large-flowered Telegraph Weed.
Hypochaeris radicata L. Bristly Cat's-Ear.
Lactuca serriola L. Prickly Lettuce.
Picris echioides L. Bristly Ox-Tongue.
Silybum marianum (L.) Gaertn. Milk Thistle.
Solidago canadensis L. ssp. *elongata* (Nutt.) Keck. Goldenrod.
Sonchus oleraceus L. Sow-Thistle.
Tragopogon porrifolius L. Salsify.
Xanthium strumarium L. var. *canadense* (Mill.) T. & G. Cocklebur.

CRUCIFERAE Mustard Family

Brassica geniculata (Desf.) J. Ball. Geniculate Mustard.
Raphanus sativus L. Wild Radish.

CYPERACEAE Sedge Family

Cyperus eragrostis Lam.
Heleocharis sp. Spike-Rush.
Scirpus robustus Pursh. Robust Tule.

DIPSACACEAE Teasel Family

Dipsacus fullonum L. Fuller's Teasel.

ERICACEAE Heath Family

Arbutus menziesii Pursh. Madrone.

EUPHORBIACEAE Spurge Family

Eremocarpus setigerus (Hook.) Benth. Turkey-Mullein.

FAGACEAE Beech Family

Quercus agrifolia Nee. Coast Live Oak.
Q. douglasii H. & A. Blue Oak.
Q. lobata Nee. Valley Oak.

GRAMINEAE Grass Family

Aira caryophyllea L.
Agrostis avenacea Gmel.
Avena barbata Brot. Slender Wild Oat.
Briza maxima L. Large Rattlesnake Grass.
B. minor L. Small Rattlesnake Grass.
Cortaderia selloana (Schult.) Asch. & Graebn. Pampas Grass.
Cynodon dactylon (L.) Pers. Bermuda Grass.
Danthonia californica Bol.
Deschampsia danthonioides (Trin.) Munro.
Distichlis spicata (L.) Greene var. *stolonifera* Beetle. Salt Grass
Elymus triticoides Buckl.
Festuca sp.
Gastridium sp.
Heleochloa schoenoides (L.) Host.
Lolium multiflorum Lam. Italian Ryegrass.
L. perenne L. Perennial Ryegrass.
Phalaris tuberosa L. var. *stenoptera* (Hack.) Hitchc. Harding Gr
Polypogon maritimus Willd.
P. monspeliensis (L.) Desf. Rabbit's-Foot Grass.

JUNCACEAE Rush Family

Juncus bufonius L. Toad Rush.
J. effusus L. var. *brunneus* Engelm.

LEGUMINOSAE Pea Family

Acacia decurrens Willd. Green Wattle.
Cytisus monspessulanus L. French Broom.
Lotus corniculatus L.
Lupinus sp.
Melilotus albus Desr. White Sweet-Clover.

LYTHRACEAE Loosestrife Family

Lythrum hyssopifolia L.

MYRTACEAE Myrtle Family

Eucalyptus globulus Labill. Blue Gum.

ONAGRACEAE Evening-Primrose Family

Epilobium paniculatum Nutt. Paniculate Willow-Herb.

PLANTAGINACEAE Plantain Family

Plantago lanceolata L. English Plantain.
P. maritima L. ssp. juncoides (Lam.) Hult.

POLYGONACEAE Buckwheat Family

Polygonum lapathifolium L. Willow Weed.
Rumex acetosella L. Sheep Sorrel
R. crispus L. Curly Dock.

ROSACEAE Rose Family

Heteromeles arbutifolia M. Roem. Toyon.
Rosa californica Cham. & Schlect. California Rose.
Rubus lacinatus Willd. Cut-Leaf Blackberry.

SALICACEAE Willow Family

Salix lasiolepis Benth. Arroyo Willow.

SOLANACEAE Nightshade Family

Solanum nodiflorum Jacq.

TYPHACEAE Cat-Tail Family

Typha latifolia L. Soft-Flag.

UMBELLIFERAE Carrot Family

MAMMALS OF NOVATO REGIONAL SHOPPING CENTER STUDY AREA

(o=species observed
os=signs observed
po=predicted to occur
p=possible present, not probable)

Species	Common Name	Status
Sorex trowbridgii	Trowbridge shrew	p
S. vagrans	vagrant shrew	p
S. ornatus	ornate shrew	po
Scapanus latimans	broad-handed mole	po
Myotis lucifugus	little brown bat	po
M. evotis	long-eared myotis	po
M. thysanodes	fringed myotis	po
M. volans	hairy-winged myotis	po
M. yumanensis	Yuma myotis	po
M. californicus	California myotis	po
M. subulatus	small-footed myotis	p
Lasionycteris noctivagans	silvery-haired bat	po
Pipistrellus hesperus	western pipistrelle	po
Eptesicus fuscus	big brown bat	po
Lasiurus borealis	red bat	po
L. cinereus	hoary bat	po
Plecotus townsendii	lump-nosed bat	po
Antrozous pallidus	pallid bat	po
Tadarida brasiliensis	Brazilian free-tailed bat	po
Lepus californicus	black-tailed hare	o
Oryctolagus cuniculus	domestic feral rabbit	p
Sylvilagus audubonii	Audubon cottontail	po
S. bachmani	brush rabbit	p
Otospermophilus beecheyi	Beechey ground squirrel	o
Thomomys bottae	Botta pocket gopher	o
Dipodomys heermanni	Heermann kangaroo rat	p
Reithrodontomys megalotis	western harvest mouse	o
R. raviventris	salt marsh harvest mouse	p
Peromyscus maniculatus	deer mouse	o
Microtus californicus	California meadow mouse	o
Ondatra zibethica	muskrat	os
Rattus norvegicus	Norway rat	po
R. rattus	black rat	o
M. musculus	house mouse	o
Canis latrans	coyote	os
C. familiaris	feral dog	os
Urocyon cinereoargenteus	gray fox	po
Procyon lotor	raccoon	os
Mustela frenata	long-tailed weasel	os
Taxidea taxus	badger	p
Spilogale putorius	spotted skunk	os
Mephitis mephitis	striped skunk	os
Felis domesticans	feral cat	o
Odocoileus hemionus	mule deer	p

BIRDS OF NOVATO REGIONAL SHOPPING CENTER STUDY AREA

o=species observed
s=signs observed
po=predicted to occur
p=possibly present, not probable.)

Common Name	Status
common loon	p
horned grebe	po
eared grebe	po
western grebe	o
pied-billed grebe	o
double-crested cormorant	o
great blue heron	o
northern green heron	po
cattle egret	p
great egret	o
snowy egret	o
black-crowned night heron	o
American bittern	po
mallard	o
gadwall	po
pintail	o
green-winged teal	o
blue-winged teal	po
cinnamon teal	o
American wigeon	o
northern shoveler	po
wood duck	p
redhead	p
ring-necked duck	po
canvasback	o
greater scaup	o
lesser scaup	po
tufted duck	p
common goldeneye	p
bufflehead	po
ruddy duck	o
turkey vulture	o
white-tailed kite	o
red-tailed hawk	o
golden eagle	p
marsh hawk	o
merlin	p
American kestrel	o
California quail	o
ring-necked pheasant	o
Virginia rail	po
sora	o
common gallinule	p
American coot	o
killdeer	o
common snipe	o
long-billed curlew	o
greater yellowlegs	o
lesser yellowlegs	po

(continued)

Common Name	Status
willet	o
least sandpiper	o
dunlin	po
western sandpiper	o
short-billed dowitcher	po
long-billed dowitcher	o
marbled godwit	o
American avocet	o
black-necked stilt	o
Wilson's phalarope	p
western gull	po
herring gull	o
Thayer's gull	po
California gull	o
ring-billed gull	o
Mew gull	p
Bonaparte's gull	p
Forster's tern	o
Caspian tern	p
rock dove	o
mourning dove	o
barn owl	po
great horned owl	po
burrowing owl Athena	o
short-eared owl	po
Anna's hummingbird	p
belted kingfisher	o
common flicker	o
acorn woodpecker	po
yellow-bellied sapsucker	po
red-naped sapsucker	p
Nuttall's woodpecker	po
western kingbird	po
ash-throated flycatcher	po
black Phoebe	o
Say's phoebe	o
violet-green swallow	p
barn swallow	po
cliff swallow	po
scrub jay	o
yellow-billed magpie	p
common crow	o
plain titmouse	o
bushtit	o
white-breasted nuthatch	po
house wren	p
Bewick's wren	po
long-billed marsh wren	o
mockingbird	o
American robin	po
hermit thrush	p
western bluebird	po
ruby-crowned kinglet	o

(continued)

Common Name	Status
water pipet	o
cedar waxwing	p
loggerhead shrike	o
starling	o
Hutton's vireo	po
yellow-rumped warbler	o
common yellowthroat	po
house sparrow	o
western meadowlark	o
yellow-headed blackbird	p
red-winged blackbird	o
tricolored blackbird	o
northern oriole	p
Brewer's blackbird	o
brown-headed cowbird	po
Lazuli bunting	p
purple finch	po
house finch	o
pine siskin	o
American goldfinch	po
lesser goldfinch	o
Rufous-sided towhee	po
brown towhee	o
Savannah sparrow	o
grasshopper sparrow	p
lark sparrow	o
dark-eyed junco	po
chipping sparrow	p
white-crowned sparrow	o
golden-crowned sparrow	o
fox sparrow	po
Lincoln's sparrow	p
song sparrow	o

APPENDIX D

CLEAN WATER ACT

SECTION 404 EVALUATION

CLEAN WATER ACT

SECTION 404 EVALUATION

Note: This evaluation will consider the impacts of the entire proposed project where applicable (discussed in the Environmental Statement as Alternative #2R) although only a portion of the proposed project site is under Section 404 jurisdiction.

I. Project Description. A complete project description is included in this Environmental Statement in paragraph 1.01ff.

A. Fill Material. 350,000 to 400,000 cubic yards of fill material will be excavated from the portion of the study area east of the railroad tracks (Plate 2). The material is younger Bay mud. "It is a soft uniform, gray silty clay containing 45 to 99 percent clay size particles, silt, minor fine sand, and fragments of shells. This soil has a high natural water content, is quite plastic and weak and highly compressible."1/ An additional 300,000 cubic yards of fill will be placed on the site supplied by quarries off-site. The compositin of this additional material is not known.

B. Description of the Proposed Site for Fill Material. The site proposed to be filled is in Novato, California (Plate 1). The site is former tideland which has beed diked off from tidal action and has been used for agriculture. Fill has previously been placed upon the 53 acres of the north of Lynwood Slough. An old branch of the Lynwood Slough meanders through the southern portion of the site. The old slough supports approximately nine acres of brackish marsh and is under Section 404 and Section 10 jurisdiction. The remainder of the area to be filled south of Lynwood Slough (approximately 46 acres) is within Corps jurisdiction under Section 10. The project site also includes two large hills covered with oak-grassland at the southern end of the property and two smaller hills along the western edged of the property. The excavation site proposed for a lake has been diked off from tidal action and is sparsely covered with ruderal vegetation. There are also two five-acre drainage ponds in this area.

II. Physical Effects (40 CFR 230.4-1(a)).

A. Potential Destruction of Wetlands. Effects on (40 CFR 230.4-(a)).

1. The proposed project would destroy approximately half of the existing wetland vegetation along the old branch of Lynwood Slough. 4.07 acres of the existing wetland would be covered by fill. A new wetland of 6.8 acres would be created adjacent to the portion of the slough to remain. The total freshwater wetland on site would be 11.7 acres. The volume of water in the marsh will also increase due to reestablishment of the connection with Cheda Creek. Primary productivity of the marsh should increase due to the increased size of the marsh, increased water circulation and greater availability of water.

1/ Goldman, Harold (E. D.), Geologic and Engineering Aspects of San Francisco Bay Fill Special Report #97, California Division of Mines and Geology, 1969, p. 20 & 21.

2. General Habitat. The proposed project will urbanize an area which has been primarily open space including a diversity of available habitats, woodland, marsh and grassland. New marsh will be created by the project, however, most of the open space will be lost. The "Ecological Preseve" will probably attract more waterfowl and wading birds than the existing habitat, and terrestrial animals will be displaced. The proposed lake will create additional habitat for waterfowl, wading birds, fish and benthic organisms.

3. Areas Set Aside for Aquatic Environment Study or Sanctuaries or Refuges. Not applicable. The project site and the surrounding areas do not belong to this category.

4. Natural Drainage Characteristics. Currently the old branch of Lynwood Slough receives runoff from approximately 70 acres to the west of the U. S. Highway 101. In the proposed project, this drainage would be directed to the "Ecological Preserve" at the southern end of the project site. The "Ecological Preserve" will also be connected to Cheda Creek by culverts under Hanna Ranch Road. Drainage from Scotsdale Pond will be diverted into the covered Lynwood channel culverts and would pass to daylight just west of the railroad tracks and then into the proposed lake on the east side of the railroad line through 60" culverts. A second large culvert will be constructed to drain Novato Creek floodwaters from the low-lying area at the Rowland Boulevard interchange to the west side of the railroad tracks. Additional culverts would be placed through the railroad embankment to discharge directly into the proposed lake. In total, the completed project will displace approximately 360 acre-feet of flood storage from the entire project site. This figure represents a 10% reduction in ponding capacity at elevation 7 feet, mean sea level.

5. Sedimentation Patterns. Construction activities will involve a temporary increase in erosion on-site and in the borrow area. As a result, the suspended sediment content of water being pumped into Novato Creek is expected to be temporarily increased. The completed project is not expected to significantly affect sedimentation.

6. Salinity Distribution. The proposed project is expected to increase the amount of runoff into Novato Creek from the project site. The increase will not have a significant impact upon salinity distribution in Novato Creek.

7. Flushing Characteristics. Not applicable. The project site is not directly connected to a water body.

8. Current Patterns. Not applicable. The project site is not directly connected to a water body.

9. Wave, Action, Erosion or Storm Damage. During the construction phase of the project, erosion may occur. After completion, storm damage may increase. Some damage may occur to the parking areas at the southern end of the proposed project during extremely high tides if the Novato Creek Levees fail. Damage may occur during a large flood on Novato Creek if the two culverts crossing the site are obstructed by debris, or their flow capacity reduced by high water levels on the area east of the railroad line. These flood flows would be diverted around the north edge of the proposed buildings and flow over the northern parking areas toward the east. Some damage to adjacent structures may occur. It is highly unlikely that both 6 foot x 20 foot culverts would be obstructed simultaneously.

The placement of fill on the project site will increase flood depths during large flood episodes at Scottsdale Pond, Highway 37 and Highway 101, due to the reduction in storage capacity.

10. Storage Areas for Storm and Flood Waters. The proposed project will reduce the total storage available by 360 acre feet. This reduction may cause slightly higher ponding levels at Scottsdale Pond during large floods. There will also be a small increase in the frequency of flooding at the Rowland Boulevard interchange. Reduction of storage volume would also reduce the effectiveness of downstream flood water storage areas to lower flood elevations upstream. The 360 acre-feet reduction represents only a few percent of the total storage available along Novato Creek.

11. Prime Natural Recharge Areas. Not applicable. There are no ground water aquifers underlying the project site.

B. Impact on Water Column.

1. Reduction in Light Transmission. Temporary increased turbidity, during construction may occur in Novato Creek near the Lynwood Slough pump station discharge point.

2. Aesthetic Values. The appearance of the water in the retention ponds east of the railroad and in Novato Creek would be affected during construction due to turbidity.

3. Direct Destructive Effects on Nektonic and Planktonic Populations. The old Lynwood Slough currently supports seasonal fish populations. Fish and plankton in the slough will be destroyed by the proposed fill, but new habitat will be created by the "Ecological Preserve" at the southern end of the property. The project is not expected to impact the fish and plankton populations of Novato Creek.

C. Covering of Benthic Communities. The benthic community in both the new and a portion of old Lynwood Slough will be destroyed by the proposed project. New habitat will be created by the "Ecological Preserve".

D. Other Effects (40 CFR 230.4-1(?)).

1. Changes in Bottom Geometry and Substrate Composition. A portion of the slough will be filled to a height suitable for development. An additional 6.8 acres will be excavated to create new wetlands. No change is expected in substrate composition.

2. Water Circulation. The water which now collects in the old Lynwood Slough will be diverted as explained under Natural Drainage characteristics. Water circulation in the "Ecological Preserve" wil be improved due to the connection to Cheda Creek.

3. Salinity Gradients. Not applicable.

4. Exchange of Constituents Between Sediments and Overlying Water with Alterations of Biological Communities. Not applicable. The proposed fill will not be in contact with a waterway.

III. Chemical - Biological Interactive Effects. Not applicable. The proposed fill will not be in contact with a waterway. However, construction and implementation of the proposed activity will create a new source of urban runoff into the proposed lake and Novato Creek.

IV. Description of site comparison (40 CFR 230.4-1(c)). Not applicable. The fill will not be in contact with a waterway.

V. Water Quality Standards. Certification of the proposed project may be required by the California Regional Water Quality Control Board.

VI. Selection of Disposal Site for Dredged or Fill Material (40 CFR 230.5).

A. The filling of the project site is necessary for the proposed development for a 69-acre regional shopping center. The proposed project is not dependent upon location in a wetland, however, there are no alternative sites available in the project vicinity for this type of development.

B. Alternatives considered to the proposed project are discussed in paragraph 1.03 of this Environmental Statement. Impacts expected from each of the alternatives are discussed under the appropriate headings throughout the text.

C. Objectives to be considered in discharge determination (40 CFR 230.5(a)):

1. Impacts on Chemical, Physical, and Biological Integrity of Aquatic Ecosystem (40 CFR 230.5(a)1). The proposed project will increase the size of the marsh on-site and would provide a larger volume of water. Biological productivity of the wetland should increase. The post project marsh would not provide as great a diversity of habitats as now exists on the project site. The proposed project may introduce urban pollutants from the developed area into Novato Creek.

2. Impact on Food Chain. These impacts are discussed in Section II of this evaluation.

3. Impact on Diversity of Plant and Animal Species. See Section II A2 of this evaluation.

4. Impact on Movement of Fauna Into and Out of Feedings, Spawning, Breeding and Nursery Areas. The creation of wetlands will provide a feeding area for migratory birds.

5. Impact on Wetland Areas Having Significant Functions of Water Quality Maintenance. No significant change. The wetland on the site contains stagnant water during the dry season and is low in dissolved oxygen. The "Ecological Preserve" plan will improve water quality in the marsh.

6. Impact on Areas that Serve to Retain Natural High Waters or Floodwaters. The proposed fillings of the site will eliminate a net of 360 acre-feet of ponding areas for flood waters both from Novato Creek and high tides.

7. Methods to Minimize Turbidity. The ponding areas on the east side of the railroad may experience some turbidity during construction. Some of the suspended particulates in the water will settle out before the water is pumped into Novato Creek.

8. Methods to Minimize Degradation of Aesthetic, Recreational, and Economic Values. The economic value of the proposed site will be increased by the proposed project. The project will eliminate about 70 acres of open space.

9. Threatened and Endangered Species. No threatened or endangered species are expected to be impacted by the proposed activity.

10. Other Measures That Avoid Degradation of Aesthetic, Recreational, and Economic Values of Navigable Waters. Not applicable. The proposed project will not impact navigable waters as fill is only proposed for land shoreward of existing levees.

D. Impacts on water uses at proposed disposal site (40 CFR 230.5(c)). Not applicable. The proposed filling will not occur in a waterway, but on wetlands. The impact upon wetlands is discussed in Section II of this evaluation.

E. Considerations to minimize harmful effects (40 CFR 230.5(c)). Not applicable. The proposed project does not include any disposal of dredged material.

WILDLIFE OF LYNWOOD SLOUGH, NOVATO

Report to

U.S. Fish and Wildlife Service
Division of Ecological Services
Sacramento, California

June 1979

APPENDIX E

REFERENCE:

SAN FRANCISCO DISTRICT
CORPS OF ENGINEERS
PUBLIC NOTICE 10138-33 (NOVATO CENTER)
CITY OF NOVATO, MARIN COUNTY, CALIFORNIA

Prepared by
Gary W. Page and Lynne E. Stenzel
Point Reyes Bird Observatory
4990 State Rout 1
Stinson Beach, California 94970

INTRODUCTION

Lynwood Slough is located southeast of the junction of Highway 101 and Rowland Boulevard, in the City of Novato, Marin County, California. It consists of approximately 9 acres of former tidal slough that has been diked and become freshwater marsh. It is abutted by abandoned and cultivated fields and two oak-covered knolls. A proposal to fill the slough so that a shopping center can be constructed on the site has prompted the U.S. Fish and Wildlife Service to collect biological data which describe and quantify some of the ecological values of the area. In compliance with that goal this report includes maps that delineate those portions of the slough containing aquatic vegetation and quantifies the number of birds using the area. Evidence for mammalian, reptilian and amphibian use of the area is also documented although in less detail than for the avian species.

PHYSICAL DESCRIPTION OF THE AREA

During former times Lynwood Slough was a tidal meander connected with what is now called Novato Creek. Evidence of the past saline environment is indicated by the presence of *Distichlis spicata* and *Salicornia* sp., two salt marsh plants growing in the slough. Culverts carrying runoff water from Highway 101 and surrounding developed lands are currently the source of freshwater for the slough. At the north end of the slough a 1-2 m wide ditch, hereafter referred to as Lynwood Ditch, drains water from Scottsdale Pond, immediately west of Highway 101, and from Lynwood Slough into Novato Creek. Lynwood Ditch does not completely drain the slough, but because the slough derives its standing water from runoff and the rainy season is limited to late fall, winter, and early spring, the slough probably normally dries up by late summer. When the area was first examined on 21 November 1978

there had already been some rain but the slough was largely without standing water.

The contours of the land surrounding the slough have already been altered by human activities. Some fill has been placed between the slough and Highway 101 and a pile of this fill several meters high sits adjacent to the slough about one half the way along its length. Some of this fill has found its way into the slough and has interrupted the flow of water from south to north. This fill prevents water from the south half of the slough from moving to the north half of the slough and from there out through Lynwood Ditch. It was in the south half of the slough that the only standing water was found when the area was first examined on 21 November.

Beginning at the south end and running towards the north for about 60% of the length of the slough is a levee a few meters high on the east bank. A shallow ditch, immediately east of the levee, parallels the levee along its entire length. Near the north end of the levee an arm of ditch turns abruptly eastward and runs for about 100 m into a field. The field east of the levee is partly cultivated and partly fallow.

Two small, oak-covered knolls several meters high at the southwest and northwest ends of the slough provide patches of relatively undisturbed upland habitat in the otherwise altered setting.

METHODS

Beginning on 21 November 1978 censuses of the birds in Lynwood Slough and the surrounding area were made by walking along the eastern margin of the slough and counting all birds seen. The slough and its immediate environs was divided into six habitats, standing water (W), aquatic vegetation (AV), low terrestrial vegetation (LV), bordering trees (T),

oak-covered knolls (OK), and air (A), and the position of each bird in relation to these habitats was recorded. Notes were also kept on the activities of the birds. As a result of these census procedures we obtained information on the number of birds, the habitats used, and the activities of the birds. Censuses were taken at the rate of two per month until May 1979, the last month of the survey, when four censuses were made. Censuses were made at different times of the day, each census taking between 1-3 hours depending on the number of birds in the area. On 23 January, when four censuses were taken, and 23 March, when three censuses were taken, series of consecutive censuses at different times and tides were made to determine whether time of day or the level of the tide in nearby San Francisco Bay had any affect on the number of aquatic birds likely to be encountered in the slough. In Table 1 census totals given for these dates are the maximum number of birds of each species seen on any single census rather than the number of birds seen on one particular census in the series.

Evidence of mammals, reptiles and amphibians was noted by looking for them or their tracks or droppings during censuses.

In addition to Lynwood Slough, a pond adjoining the south end and a drainage ditch abutting the north end of the slough were examined and the birds found in them recorded.

On some visits to the study site a second observer was present who prepared maps of the aquatic vegetation in the slough. Photographs of some parts of the slough were also taken and are included with the report to give the reader more familiarity with the area.

AQUATIC VEGETATION

Two aquatic plants, a tule (*Scirpus robustus*) and a cat-tail (*Typha latifolia*), form the bulk of the aquatic vegetation in the slough. Parts of the slough are choked by one or both of these species. In addition to the tule and cat-tail some pondweed (*Potamogeton* probably *pectinatus*), salt grass (*Distichlis spicata*), pickleweed (*Salicornia* sp.), and brass buttons (*Cotula coronopifolia*) grow in the slough. A small grove of willows (*Salix* sp.) growing between Highway 101 and the slough also attest to the aquatic nature of the area. The distribution of the major aquatic vegetation along the slough is illustrated in Appendix 1.

SLOUGH AVIFAUNA

From censuses of the slough and its immediate environs 49 species of birds were recorded. These represent 62% of the 79 species seen over a wider area which included man-made ponds about 0.5 km east of the slough and Novato Creek between Highways 101 and 37. A list of the species seen over the wider area during this study, giving numbers by date for those seen in the slough and its immediate environs, is presented in Table 1.

Standing Water. Standing water was probably the major component of the environment drawing six species to the area. These included the Great Blue Heron, Great Egret, Black-crowned Night Heron, Mallard, Common Gallinule and American Coot. All these species were encountered in small numbers (Table 1). The herons and egrets fed in the slough but did not nest there. Mallards, Common Gallinules and American Coots fed in the slough and a pair of each probably nested there, although no positive evidence for this was found. A brood of Mallards was observed on two dates on the pond immediately south of the slough.

Species	21 Nov	6 Dec	26 Dec	9 Jan	23 Jan	6 Feb	27 Feb	8 Mar	23 Mar	5 Apr	19 Apr	1 May	3 May	9 May	23 May
Pied-billed Grebe															
Double-crested Cormorant															
Great Blue Heron *W, OK*			2							1			1		
Green Heron															
Great Egret *W*					1		1								
Snowy Egret															
Black-crowned Night Heron *OK*				3											
Mallard *W*			2		2	2		6	2	2	2		2		2
Pintail															
Green-winged Teal															
Cinnamon Teal															
Northern Shoveler															
Redhead															
Canvasback															
Greater Scaup															
Lesser Scaup															
Common Goldeneye															
Bufflehead															
Ruddy Duck															
Turkey Vulture *A, OK*	1		1		1			1	11	1	1		3	1	3
White-tailed Kite *A, OK*	2	1	1	1											
Sharp-shinned Hawk *T, A*	1		1	1	1										
Red-tailed Hawk *A, OK*	1	1	1		1										
Red-shouldered Hawk *A, OK*					1	1		1						1	
Marsh Hawk															

Table 1. List of birds seen in the area of Lynwood Slough giving numbers by date for those actually associated with the slough and bordering vegetation. *W* = water, *AV* = aquatic vegetation, *LV* = low terrestrial vegetation, *T* = bordering trees, *OK* = oak knolls, and *A* = air. These codes indicate the parts of the slough where birds were seen.

Species	21 Nov	6 Dec	26 Dec	9 Jan	23 Jan	6 Feb	27 Feb	8 Mar	23 Mar	5 Apr	19 Apr	1 May	3 May	9 May	23 May
Prairie Falcon															
American Kestrel *A, OK, T*			1	1	2		2	1	1	1			1	2	2
California Quail *LV, AV, T*	15	19	40	25	39	23			1		2			3	3
Virginia Rail															
Common Gallinule *W, AV*									2					1	
American Coot *W*							1	1	1		2	1		1	
Killdeer *LV*								1						2	2
Greater Yellowlegs															
Common Snipe															
Long-billed Dowitcher															
Least Sandpiper															
Dunlin															
Mew Gull															
Mourning Dove *OK, LV, T*					1			1	1		3		2	6	6
Vaux's Swift *A*														1	
Allen's Hummingbird *T*								1							
Belted Kingfisher															
Red-shafted Flicker *OK, T*			1	1		1				1					
Downy Woodpecker *OK*			1												
Nuttall's Woodpecker *OK*														1	
Black Phoebe *A, AV, OK*	1		1	3	3		2	2						2	
Say's Phoebe															
Violet-green Swallow															
Rough-winged Swallow															
Barn Swallow *A*										2	2			2	1
Cliff Swallow *A*														7	2
Scrub Jay *T, OK*												2		1	

Table 1. Continued

Species	21 Nov	6 Dec	26 Dec	9 Jan	23 Jan	6 Feb	27 Feb	8 Mar	23 Mar	5 Apr	19 Apr	1 May	3 May	9 May	23 May
Common Crow *OK*			1					2	2						
Plain Titmouse *OK*													2		3
Bushtit *T,OK*			5		8				5	5			4	2	
Long-billed Marsh Wren															
Mockingbird *T*											1			2	1
Western Bluebird *OK*													1		
Ruby-crowned Kinglet *T*		1	4		1										
Water Pipit															
Loggerhead Shrike *T*		1	1												
Yellow-rumped Warbler *T, OK*		4	7	14											
Western Meadowlark *LV, OK*	1										2				
Red-winged Blackbird *AV, T, OK*				42	2		1	30	20	19	74	68	100	87	98
Northern Oriole *OK*													1	4	1
Brewer's Blackbird *OK*				3											
Brown-headed Cowbird *OK*														1	
Purple Finch *T*	5														
House Finch *LV, T, OK*	25	117	177	79	471	123	137	238	49	8	5		3	7	3
Pine Siskin *T*		1													
American Goldfinch *T, OK*	3									1	1		2	3	5
Brown Towhee *LV*				2											
Savannah Sparrow *LV*	2		2												
Dark-eyed Junco *OK*			12												
White-crowned Sparrow *LV, T, AV*	68	37	44	40	65	4	23	21	40	4	4				
Golden-crowned Sparrow *LV, AV, T*	1	15	12		5				9	17	3				
Song Sparrow *LV, AV, OK*	3	9	13	7	7	3	10	12	18	11	7	3	7	15	8
Ring-necked Pheasant *OK*										1					
European Starling *OK, T*									2		8	3			

Table 1. Continued.

Aquatic vegetation. Aquatic vegetation was the primary feature attracting Red-winged Blackbirds to the area. Blackbird nests were easy to find in the cat-tails in May. Census totals for male and female Red-winged Blackbirds for April and May give some idea of the numbers nesting on the 9 acres (Table 2). Being polygynous males may mate with more than one female so that female rather than male numbers are more likely equal to the number of nests.

Date	Males	Females
19 Apr	38	36
1 May	32	36
3 May	36	64
9 May	29	58
23 May	25	55

Table 2. Numbers of male and female Red-winged Blackbirds on nine-acre Lynwood Slough.

The tules and cat-tails also were of importance to the Common Gallinule which fed in their cover, to Black Phoebes which used them as hunting perches, and to Song Sparrows which used them as singing perches. California Quail, White-crowned Sparrows and Golden-crowned Sparrows were sometimes flushed from the tules and may have been feeding there. Thus the aquatic vegetation was of value to at least seven species.

Low Terrestrial Vegetation. Ten species of birds were associated with low growing terrestrial vegetation on the levee or along other borders of the slough. Up to 40 California Quail, 2 Killdeer, 6 Mourning Doves, 2 Western Meadowlarks, 471 House Finches, 2 Brown Towhees, 2 Savannah Sparrows, 68 White-crowned Sparrows, 17 Golden-crowned Sparrows and 18 Song Sparrows appeared in low growing vegetation during one or more censuses (Code *LV* in Table 1). All these species foraged in the area. The quail, White-crowned Sparrows, Golden-crowned Sparrows, and Song Sparrows also probably foraged to some extent

in the aquatic vegetation. The quail, meadowlark and Song Sparrows almost certainly nested in the low growing terrestrial vegetation. A pair of Killdeers nested on the gravel fill immediately west of the slough. Because of the heavy vegetation bordering the slough these Killdeers appeared to confine their activities to the fill area and did not come down to the slough waters to feed.

Trees Bordering Slough. Twenty species of birds occurred in the trees bordering the slough (code *T* in Table 1). These included the Sharp-shinned Hawk, American Kestrel, California Quail, Mourning Dove, Allen's Hummingbird, Red-shafted Flicker, Scrub Jay, Bushtit, Mockingbird, Ruby-crowned Kinglet, Loggerhead Shrike, Yellow-rumped Warbler, Red-winged Blackbird, Purple Finch, House Finch, Pine Siskin, American Goldfinch, White-crowned Sparrow, Golden-crowned Sparrow and European Starling. The Mourning Dove, American Goldfinch and Mockingbird were the three species that probably bred in the trees adjacent to the slough.

Oak-covered Knolls. The oak-covered knolls provided a relatively undisturbed habitat in the area. A total of 29 species of birds were found at one time or another on these knolls. These species are indicated by the code *OK* in Table 1. Several species of hawks used trees on the knolls for perches and a pair of American Kestrels probably nested on the knoll by the south end of the slough. On two different occasions this pair of hawks was observed making food exchanges here. Plain Titmice and Mourning Doves probably also nested in the oaks on the knoll. Most species used the trees as perches and the Red-shafted Flicker, Downy Woodpecker, Nuttall's Woodpecker, Plain Titmouse, Yellow-rumped Warbler and Northern Oriole definitely foraged in them.

Aerial Foragers. A final habitat, the air space over the standing water in the slough (code *A* in Table 1), provided a foraging area for at least four

species of birds that ate insects attracted to or dependent on the slough for some part of their life cycle. These included the Vaux's Swift, Barn Swallow, Cliff Swallow, and Black Phoebe. Small numbers of these species occurred on some censuses A pair of Black Phoebes nested in a farm shed at the south end of the slough.

AQUATIC BIRD USE OF THE SLOUGH

Six species of aquatic birds, the Great Blue Heron, Great Egret, Black-crowned Night Heron, Mallard, Common Gallinule and American Coot, were found on the slough on one or more censuses. None of these species ever exceeded six individuals during a particular census. Series of censuses conducted on 23 January and again on 23 March failed to turn up significantly more birds when the tide was high than when it was low in San Francisco Bay. Thus there was no evidence that some birds might fly from San Francisco Bay to forage in the slough when tidal conditions did not favor their feeding in the bay.

Waterbird use of Lynwood Slough probably would have been greater had it held a significant area of standing water year round. Aquatic insects and other invertebrates must perish when the slough dries up in late summer. The re-population of this food resource for birds probably proceeds rather slowly during the cold winter months after the first rains fill the slough. During the course of the study we noticed that the number of a small aquatic insect, water boatmen (Corixidae), gradually increased in the waters throughout the slough, indicating such a phenomenon.

In central California aquatic birds use wetland habitat as staging areas during spring and fall migration, as overwintering areas, and as breeding areas. Because Lynwood Slough is largely dry during late summer and fall its use as a fall migrational staging area must be very limited to non-existent.

No censuses were taken during this period, however, so that we cannot say for certain what use is made of the area at that time. The herons and egrets found at the slough were wintering in the area; the Mallards, coots and gallinules wintered and probably bred in the area. There was no evidence that any waterbird made use of the slough as a staging area during spring migration.

Information on past use of Lynwood Slough by waterbirds is minimal. Ed O'Conner of Bolinas who has hunted the area in the past has mentioned finding coots and Mallards at the site and Beverly Ehreth of Novato mentions the same species as well as nesting Red-winged Blackbirds. Our census results are consistent with these observations. Harvey, Savage, Hopkins and Hale (1978) give a long list of species seen in the general area in November and December 1978 but do not specify the number of individuals seen or the exact location of the sightings.

AQUATIC BIRD USE OF AREAS ADJACENT TO LYNWOOD SLOUGH

Three areas abutting Lynwood Slough held standing water during the winter and provided potential habitat for waterbirds. At the south end of the slough, separated from the slough by a roadway and earth dam, was a small farm pond, less than 1 acre in size. There was some *Scirpus* along the borders of the pond but it was primarily an area of open water. Eleven species of aquatic birds were found on this pond during the censuses (Table 3). Some of these birds such as the coot, Mallard and Great Egret were undoubtedly the same individuals that used the slough at other times but some species such as the Belted Kingfisher and Snowy Egret occurred several times on the pond but were never seen on the slough.

Species	21 Nov	6 Dec	26 Dec	9 Jan	23 Jan	6 Feb	27 Feb	8 Mar	23 Mar	5 Apr	19 Apr	1 May	3 May	9 May	23 May
Pied-billed Grebe			1						2	2					
Green Heron															1
Great Egret					1	1							1		
Snowy Egret			1	3	4	1									
Mallard											1	8*	10**		
Lesser Scaup						2									
Common Goldeneye					1										
Common Gallinule			1	1											
American Coot					1	1		1	1	1					
Killdeer				2											
Belted Kingfisher	1	1	1	1	1	1		1							

Table 3. Aquatic birds seen on the farm pond at the south end of Lynwood Slough. * is a female attending seven young, ** a female attending nine young.

The narrow ditch that paralled and lay immediately east of the southern part of the slough held standing water after the rains but supported few birds. There were some small stands of tule in the ditch and some Red-winged Blackbirds nested in these; however, other than one Great Blue Heron standing in this ditch on one occasion, no waterbirds were seen here.

Birds in Lynwood Ditch, a channel that drains the north end of Lynwood Slough, were counted between the highway and the railway tracks to the east. This narrow ditch held standing water and was fairly heavily vegetated with cat-tails and tules. Six species of aquatic birds were found using the area. Many of the sparrows that were found along the banks of Lynwood Slough were also found along the banks of Lynwood Ditch (Table 4).

Species	6 Dec	26 Dec	9 Jan	23 Jan	6 Feb	27 Feb	8 Mar	23 Mar	5 Apr	19 Apr	1 May	9 May	23 May
Great Blue Heron				1	1	1							
Great Egret					1								
Snowy Egret			2										
Mallard								2		1			
Cinnamon Teal				1									
California Quail										2	2	2	
Killdeer										1	2	2	2
Say's Phoebe	1												
Barn Swallow										2		2	
Western Meadowlark												1	
Red-winged Blackbird					1			1	2	5	8	13	9
House Finch		18		1	69								
Savannah Sparrow	3	3						1	1	1			
White-crowned Sparrow		2				2	2						
Golden-crowned Sparrow		8		1			6						
Song Sparrow		3		2	2		3	2	1	1		2	2

Table 4. Birds seen on censuses of Lynwood Ditch.

MAMMALS, REPTILES AND AMPHIBIANS

From tracks or actual sightings, the presence of eight different species of mammals was confirmed for Lynwood Slough. The evidence for the presence of each species is summarized in Table 5.

Species	21 Nov	6 Dec	26 Dec	9 Jan	23 Jan	6 Feb	27 Feb	8 Mar	23 Mar	5 Apr	19 Apr	1 May	3 May	9 May	23 May
Lepus californicus	3	9	7	3	2		2	4	6	4	4	1	1	4	6
Otospermophilus beecheyi											1			1	
Ondatra zibethica			2		1			1	3		1				
Canis familiaris		tks	tks				tks								
Procyon lotor	tks	tks			tks					tks	tks				
Mephitis mephitis											tks				tks
Felis domestica		1													
Odocoileus hemionus	tks	tks	tks		tks			tks			tks				1

Table 5. List of mammals found at Lynwood Slough. tks = tracks, indirect evidence for the species' presence. *L. californicus* is Blacktail Jackrabbit, *O. beecheyi* is Beechey Ground Squirrel, *O. zibethica* is Muskrat, *C. familiaris* is Domestic Dog, *P. lotor* is Racoon, *M. mephitis* is Striped Skunk, *F. domestica* is feral cat, and *O. hemionus* is Mule Deer.

In addition to the mammals listed in Table 5 small rodents that were seen too briefly to be identified occurred in the area. Work done by Harvey, Savage, Hopkins, and Hale (1978) indicates that the House Mouse (*Mus musculus*), Deer Mouse (*Peromyscus maniculatus*), California Vole (*Microtus californicus*), Western Harvest Mouse (*Reithrodontomys megalotis*), and Black Rat (*Rattus rattus*) are among the small rodents inhabiting the slough area.

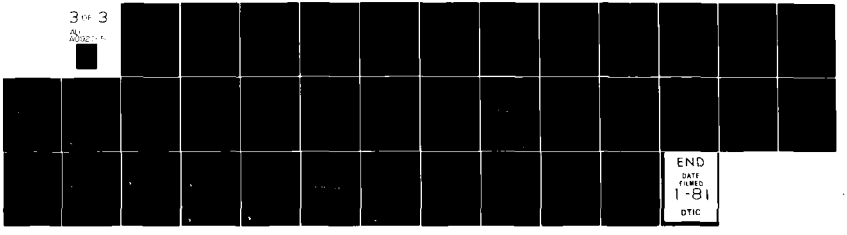
Two species of reptiles, the Western Fence Lizard (*Sceloporus occidentalis*) and garter snake(*Thamnophis* sp.) were observed at the slough during the course of the study. The lizards occurred on the slough levee. The garter snake, which may have been the Western Aquatic Garter Snake (*Thamnophis couchi*) was seen only once, swimming under water in the slough. The Western Pond Turtle (*Clemmys marmorata*) occurred in the farm pond at the south end of the slough

AD-A092 785 CORPS OF ENGINEERS SAN FRANCISCO CALIF SAN FRANCISCO--ETC F/G 13/2
NAVATO CENTER REGULATORY PERMIT APPLICATION BY NOVATO CENTER IN--ETC(U)
NOV 80

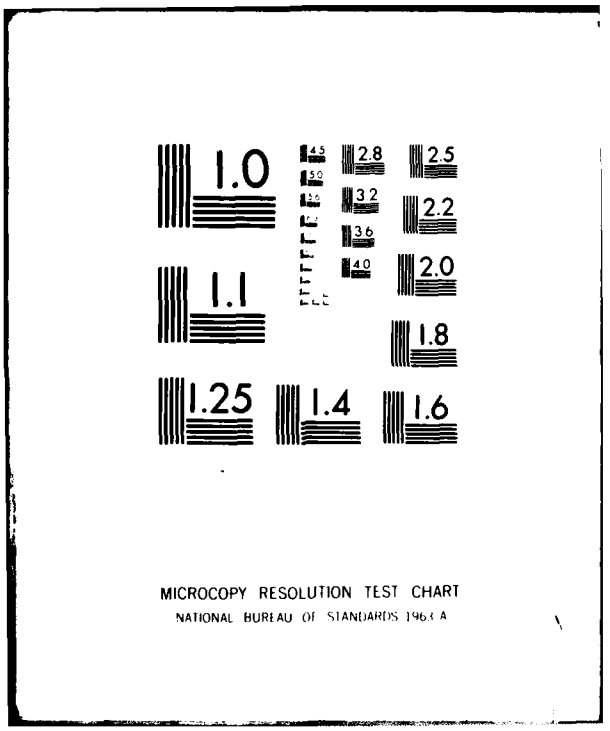
UNCLASSIFIED

NL

3 OF 3
AD A092 785



END
DATE FILMED
1-81
DTIC


1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
4.5
5.0
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963 A

and judging by the presence of droppings on a board floating in the slough may have also have occurred there although none were seen.

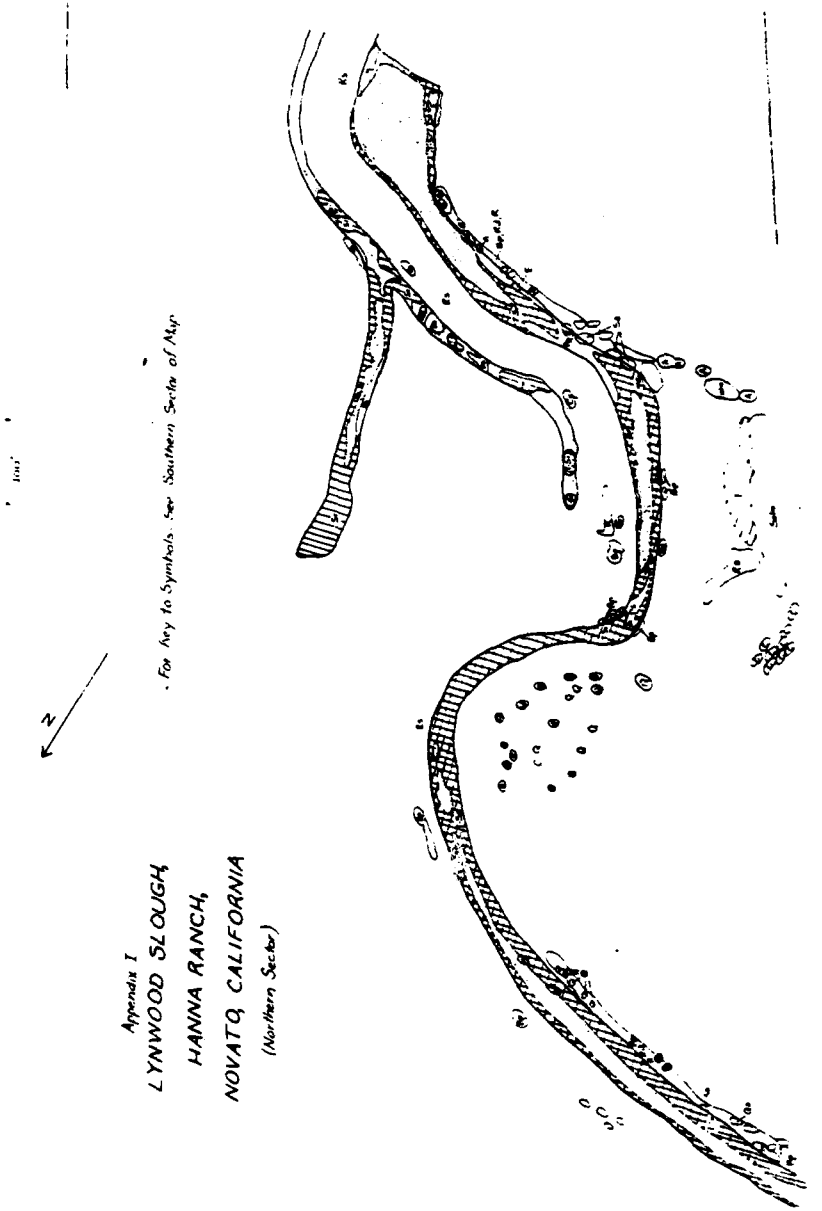
Two species of amphibians were found in the slough. These were the Pacific Tree Frog (*Hyla regilla*), which were heard singing and were seen at the south end of the slough, and the Bullfrog (*Rana catesbeiana*), which were seen at the north end of the slough.

SUMMARY

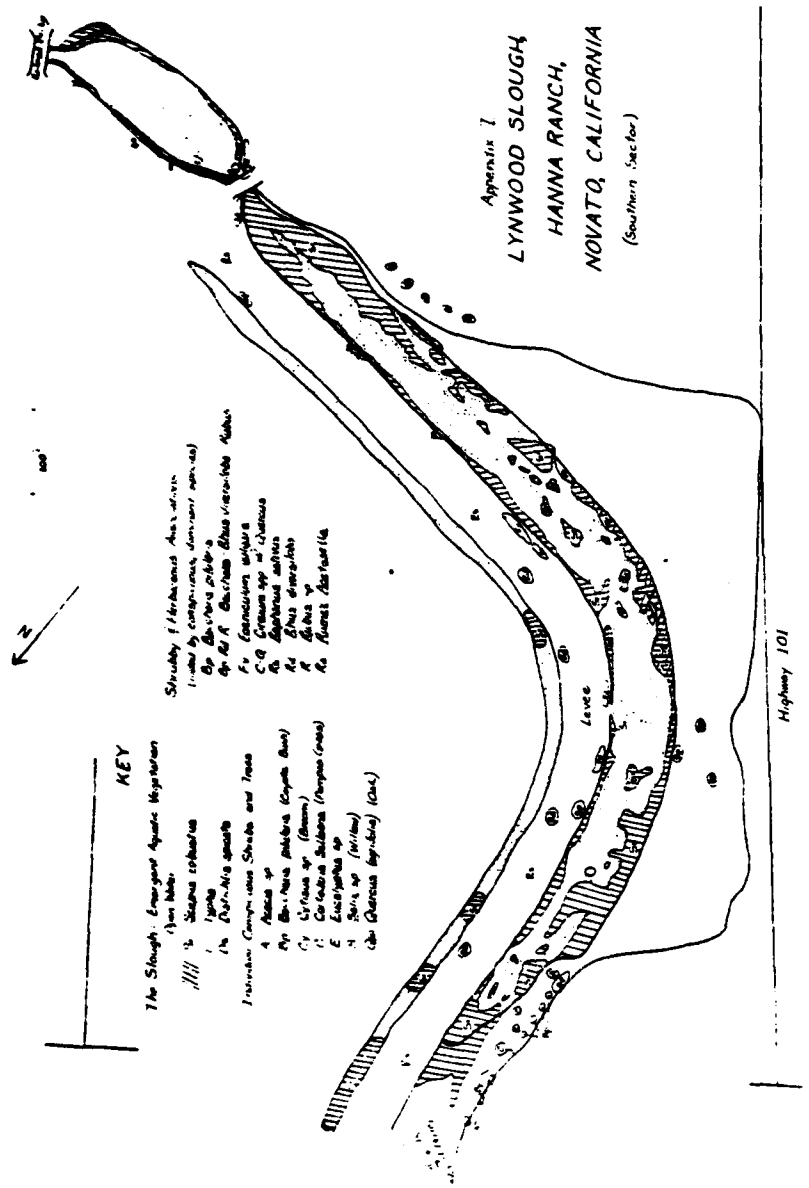
The 9-acre Lynwood Slough is a wetland with standing water during winter, spring and early summer. Cat-tail and tule are the dominant emergent vegetation in the freshwater slough. At least 49 species of birds, 13 species of mammals, 2 species of reptiles, and 2 species of amphibians were found in the slough or along its borders between November 1978 and May 1979. Standing water was the primary factor attracting six species of aquatic birds to the area, and aquatic vegetation the factor attracting one other species. Ten species of birds were associated with low growing terrestrial vegetation adjacent to the slough and 20 species were associated with trees bordering the slough. Twenty-nine species of birds occurred on two oak knolls that lay adjacent to the slough. The air space over the slough was utilized by four species of aerial foragers. Aquatic bird use of the area would probably have been greater if there had been a significant amount of standing water year round.

LITERATURE CITED

Harvey, H. T., W. Savage, N. Hopkins and J. M. Hale. 1978. Novato regional shopping center technical report on vegetation and wildlife. Report to Environmental Impact Planning Corporation -- no address given.



Appendix I
LYNWOOD SLOUGH
HANNA RANCH,
NOVATO, CALIFORNIA
(Northern Sector)



Date	Time	Weather	Observers*
21 Nov 78	1330-1445	partly overcast, wind light	GP, JT
6 Dec 78	1030-1200	not recorded	GP, LS
26 Dec 78	1030-1130	foggy, calm	GP
9 Jan 79	1510-1610	overcast with drizzle	LS
23 Jan 79	1000-1030	overcast	GP
"	1200-1230	overcast	GP
"	1400-1430	mainly clear	GP
"	1600-1630	mainly clear	GP
6 Feb 79	1330-1445	clear, light winds	LS
27 Feb 79	1315-1415	partly overcast, light winds	LS
8 Mar 79	0800-0910	foggy and calm	LS
23 Mar 79	0900-1010	clear with light winds	GP, LS
"	1245-1345	"	GP, LS
"	1600-1700	"	GP, LS
5 Apr 79	1200-1300	clear with light winds	GP
19 Apr 79	1200-1330	clear with light winds	GP
1 May 79	1400-1520	partly overcast with moderate winds	LS
3 May 79	0815-1025	overcast with light winds	LS
9 May 79	0915-1045	clear and calm	GP
"	1145-1315	"	GP
23 May 79	0930-1230	clear with light winds	GP, LS

Appendix 2. Dates, times, weather and observers on censuses.
* GP is Gary Page, LS is Lynne Stenzel, and JT is Joseph Tieger.

APPENDIX F

COMMENTS AND RESPONSES TO DRAFT ENVIRONMENTAL STATEMENT

APPENDIX F

COMMENTS AND RESPONSES TO DRAFT ENVIRONMENTAL STATEMENT

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

Project #D-C03-K35015-CA
PN#10138-33

Colonel John M. Adsit
District Engineer
U.S. Army Corps of Engineers
211 Main Street
San Francisco, CA 94105

OCT 5 1979

Dear Colonel Adsit:

The Environmental Protection Agency (EPA) has received and reviewed the draft environmental impact statement (DEIS) titled NOVATO CENTER REGULATORY PERMIT APPLICATION, MARIN COUNTY, CALIFORNIA.

The EPA's comments on the DEIS have been classified as Category ER-2. Definitions of the categories are provided on the enclosure. The classification and the date of the EPA's comments will be published in the Federal Register in accordance with our responsibility to inform the public of our views on proposed Federal Actions under Section 309 of the Clean Air Act. Our procedure is to categorize our comments on both the environmental consequences of the proposed action and the adequacy of the environmental statement.

The EPA appreciates the opportunity to comment on this draft environmental impact statement and requests three copies of the final environmental impact statement when available.

If you have any questions regarding our comments, please contact Susan Sakaki, Acting EIS Coordinator, at (415)556-6695.

Sincerely yours,

Paul De Falco, Jr.
Regional Administrator

Enclosure

Permit Comments

The Environmental Protection Agency has reviewed the Draft EIS and proposed permit in accordance with Regulations 40 CFR 230 promulgated pursuant to Section 404(b) of the Clean Water Act of 1977. Specifically, under EPA guidelines 230.5 (b)(8)(ii)(a) and (b):

> (ii) Discharge of fill material in wetlands shall not be permitted unless the applicant clearly demonstrates the following:
>
> (a) The activity associated with the fill must have direct access or proximity to, or be located in, the water resources in order to fulfill its basic purpose, or that other site or construction alternatives are not practicable; and
>
> (b) that the proposed fill and the activity associated with it will not cause a permanent unacceptable disruption to the beneficial water quality uses of the affected aquatic ecosystem, or that the discharge is part of an approved Federal program which will protect or enhance the value of the wetlands to the ecosystem.

The filling of 8 acres of marsh in Lynwood Slough, for the purpose of creating an upland area for commercial development of a regional shopping center, does not constitute a water dependent activity. Also, the destruction of aquatic resources by filling operations in wetlands is considered to have severe environmental impact and cannot be permitted except in conformance with EPA regulations cited above. According to the draft EIS (Sec. 2.087), the Lynwood Slough Area proposed for filling is rated as rich in vegetation and high in wildlife use. Furthermore, under EPA guidelines 230.5(a), consideration shall be given to alternate sites that are less damaging to the environment. This Office recognizes Alternative #3, as described in the draft EIS, as being less damaging to the environment since the adverse impact of filling Lynwood Slough would be eliminated while providing the applicant with an equal amount of leasable retail space. Since there is no water dependent justification, and there will be a permanent loss of 8 acres of wetland in Lynwood Slough, and because there is a less environmentally damaging alternative, the selected alternative is considered unacceptable and the Environmental Protection Agency objects to the issuance of the Section 404 permit as proposed. This letter constitutes the final comment by the EPA on public notice 10138-33 issued on January 27, 1978.

1

RESPONSES TO COMMENTS BY U.S. ENVIRONMENTAL PROTECTION AGENCY (5 October 1979)

1. See EPA Letter dated 28 March 1980 (page F-6).

2. Street improvements are desired in paragraph 2.138. The Metropolitan Transportation Commission's Transportation Improvement Program for 1979-1980 was reviewed and it was determined that there are no projects proposed for funding by either the State or Federal highway department programs in the immediate vicinity of Study Areas 1-4. All of the surface and freeway improvements described i paragraphs 2.141ff will be financed by the developer of Alternative #2R.

3. The meterological conditions assumed for the carbon monoxide calculation consists of a wind at an angle of 22.5 degrees to the road at speeds of one meter per second for the 1-hour averaging time and two meters per secon dor the 8-hour averaging time. The gussian line source model of the Air Quality Manual (1972 California Division of Highways, Materials and Research Department, Sacramento, California) is used in the calculations. Stability assumed is Turner E (1-hour) and Turner D (8-hour).

Air Comments

1. DEIS Section 2.158

2 The DEIS states: "There is no apparent need to make major physical or operational improvements to the local street system beyond those being proposed by the developer" (pg. 45). The FEIS should describe the improvements to the local street system being proposed by the developer and document the extent tc which these improvements conform with those detailed in the Metropolitan Tra sportation Commission's Transportation Impro ement Program (June 22, 1976).

2. DEIS Appendix A

3 The DEIS predicts CO concentrations at receptors near local access roads. The FEIS should describe the meteorological conditions used in this CO analysis including atmospheric stability class and wind speed.

EIS CATEGORY CODES

Environmental Impact of the Action

LO--Lack of Objections

EPA has no objection to the proposed action as described in the draft impact statement; or suggests only minor changes in the proposed action.

ER--Environmental Reservations

EPA has reservations concerning the environmental effects of certain aspects of the proposed action. EPA believes that further study of suggested alternatives or modifications is required and has asked the originating Federal agency to reassess these aspects.

EU--Environmentally Unsatisfactory

EPA believes that the proposed action is unsatisfactory because of its potentially harmful effect on the environment. Furthermore, the Agency believes that the potential safeguards which might be utilized may not adequately protect the environment from hazards arising from this action. The Agency recommends that alternatives to the action be analyzed further (including the possibility of no action at all).

Adequacy of the Impact Statement

Category 1--Adequate

The draft impact statement adequately sets forth the environmental impact of the proposed project or action as well as alternatives reasonably available to the project or action.

Category 2--Insufficient Information

EPA believes that the draft impact statement does not contain sufficient information to assess fully the environmental impact of the proposed project or action. However, from the information submitted, the Agency is able to make a preliminary determination of the impact on the environment. EPA has requested that the originator provide the information that was not included in the draft statement.

Category 3--Inadequate

EPA believes that the draft impact statement does not adequately assess the environmental impact of the proposed project or action, or that the statement inadequately analyzes reasonably available alternatives. The Agency has requested more information and analysis concerning the potential environmental hazards and has asked that substantial revision be made to the impact statement.

If a draft impact statement is assigned a Category 3, no rating will be made of the project or action, since a basis does not generally exist on which to make such a determination.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
215 Fremont Street
San Francisco, Ca. 94105

In Reply E-4
Refer to: PEA 3-5-1

District Engineer
San Francisco District
Corps of Engineers
211 Main St.
San Francisco, CA 94105

2 0 MAY 1980

Re: Public Notice No. 10138-33, Novato Regional Shopping Center, Ernest W. Hahn, Inc.

Dear Sir:

This is in response to the Corps of Engineers' Public Notice, referenced above, pertaining to an application to the Department of the Army for a permit to discharge dredge and fill material into waters of the United States in accordance with the provisions of Section 404 of the Clean Water Act of 1977.

We have reviewed the modified plans of December 5, 1979 and all of the related project information presented at the March 7, 1980 meeting at the San Francisco Corps of Engineers. We have determined that the revised project is in conformance with EPA regulations at 40 CFR 230 (refer to objection letter of October 5, 1979 for specific citations).

Although the proposed shopping center is not a water dependent activity, the applicant has demonstrated that:

1. Other site or construction alternatives are not practicable; and
2. The permanent loss of eight acres of wetlands has been cut in half by reducing the development area; and
3. A mitigation plan will be implemented for the unavoidable loss of wetlands and wildlife habitat.

Based on the proposed creation of new wetlands and the enhancement of wildlife habitat in the adjacent 278 acre state-owned land, there will be an overall gain in environmental values as a result of project construction. This is a commendable proposal and a concept which EPA supports.

However, in order to insure the completion and success of the proposed plan, EPA requests that the following special conditions be included in the proposed project.

1. All work proposed for the mitigation plan be completed prior to the opening of the site for commercial uses.
2. The developer, Ernest Hahn, Inc., is responsible to accomplish all of the mitigation plan in a biologically viable manner, including watering of plants until they are established.

The effectiveness of these actions, related to work done under the mitigation plan, will be evaluated by completion of a biological assessment carried out by Ernest Hahn, Inc. and coordinated with EPA, Corps of Engineers, USFWS and DFG within one year after completion of the project.

If a reasonable level of biological productivity is not achieved, then Ernest Hahn, Inc. will implement those measures which are deemed necessary by the coordinating agencies.

The Environmental Protection Agency will provide final comment on the proposed Novato Regional Shopping Center after review of the Final EIS. We request that all of the proposed work for the commercial development and the mitigation plan be presented in its entirety in the Final EIS. Should you have any further questions please contact Mr. Eric Yunker at (415)556-3454.

Sincerely yours,

Kathleen J. Sheminin for

Clyde B. Eller
Director
Enforcement Division

cc: USFWS, Sacramento
DFG, Yountville
RWQCB, San Francisco

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
300 South Ferry Street
Terminal Island, CA 90731

September 10, 1979 FSW33/WSL

Colonel John M. Adsit
District Engineer
San Francisco District
Corps of Engineers
211 Main Street
San Francisco, CA 94105

Dear Colonel Adsit:

Subject: Public Notice No. 10138-33 (Novato Center, Inc.) January 27, 1978, to fill eight acres of brackish marsh and 48 acres of historic wetland, and retain two previously placed partial fills near Novato, Marin County, California

In our letter of February 8, 1978 we stated that we would withhold our comments on the subject Public Notice (PN) until after we had reviewed the Environmental Statement (ES) for the proposed project. We have completed that review and provide the following comments in response to the applicant's proposed project as described in the PN.

Since the existing fill was placed before we had formulated guidelines and policies for involvement in the permit review process, we will provide no comment or recommendation regarding that 53 acre portion of the project. Thus our recommendations deal with the fill proposed for the 56 acres of lowland and the creation of a 37 acre lake. We do not object to issuance of a permit for excavation of the lake but do not regard it as mitigation for the fill proposed for placement over 56 acres south of Linwood Slough. Because the area proposed for fill would be used as a shopping center we would object to filling the existing marsh. It is our conclusion after inspecting the site and reading the ES, that there are feasible alternatives that would eliminate the need for that portion of the fill. Corps of Engineers' Permit Regulations and Department of Commerce procedures for implementing Executive Order 11990 also support the concept of preserving that wetland in view of the non-water dependence of this project. Thus we request that no permit be issued for filling the eight acres of salt marsh. 1

RESPONSES TO COMMENTS BY U.S. DEPARTMENT OF COMMERCE (10 September 1979)

1. See paragraph 1.30.

2. See NOAA letter of 19 May 1980 (Document F-5).

The remainder of the proposal involves placement of fill on about 48 acres of diked lowlands. Our philosophy with respect to restorable tidal areas has been that they represent a potentially valuable habitat. Thus, if the levees were maintained the land would never possess fish habitat value, but if the land were filled, the potential value would be lost forever. Our position has been that the permanent loss of a portion of such lands is acceptable *in exchange for unlocking the potential* habitat value of the remainder. Therefore, we would not object to permitting fill over about 24 acres providing the remaining 24 were restored to tidal action. It would be necessary for the applicant to meet with members of my staff if he wishes to pursue a mitigation agreement of this nature.

2

If you wish to contact this agency further on this matter, please direct comments to William Leet: National Marine Fisheries Service, 3150 Paradise Drive, Tiburon, CA 94920; phone (415) 556-0565.

Sincerely,

Gerald V. Howard
Regional Director

cc:
F7
WSL
USFWS, J. McKevitt
CRWQCB, N. Rial
CDFGG, D. Lollock

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
300 South Ferry Street
Terminal Island, CA 90731

April 1, 1980 F/SWR33:WSL

Colonel John M. Adsit
District Engineer
San Francisco District
Corps of Engineers
211 Main Street
San Francisco, CA 94105

Dear Colonel Adsit:

Subject: Public Notice No. 10138-33 (Novato Center, Inc.) to place fill in a historic wetland area near Novato, California

We have reviewed the new plan for the subject project and find that it still falls short of the habitat protection requirements which were outlined in our letter of September 10, 1979. We, therefore, continue to request that a permit for the project as presently designed not be issued.

If you wish to contact this agency further on this matter, please direct comments to William Loet at: National Marine Fisheries Service, 3150 Paradise Drive, Tiburon, CA 94920; phone (415) 556-0565.

Sincerely,

Floyd S. Anders, Jr.
Acting Regional Director

Enclosure

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southwest Region
300 South Ferry Street
Terminal Island, California 90731

May 19, 1980 F/SWR33:PL

Colonel John M. Adsit
District Engineer
San Francisco District
Corps of Engineers
211 Main Street
San Francisco, CA 94105

Dear Colonel Adsit:

Subject: Public Notice No. 10138-33 (Novato Center, Inc.) to Place Fill in a Historic Wetland Area Near Novato, California

We have reconsidered the new plan for the subject project, as described by M & M Consultants, Inc., and have modified our position conveyed to you in our letter dated 1 April 1980.

We will remove our objections to the proposed activity when an acceptable mitigation plan has been developed for the adjacent, 278-acre State Lands parcel. We generally feel that mitigation should be provided on-site. however, in this case, since the slough/wetland area would be managed in the mitigation plan as a freshwater area for wildlife purposes, we will accept appropriate mitigation on the adjacent State-owned land.

The mitigation plan for the State parcel, as described by Keith Hastings of M & M Consultants, Inc. to Ms. Paget Leh of my staff on 1 May 1980, would involve dredging channels around the perimeter of the parcel with controlled tidal inflow and outflow via Novato Creek, such that the land area in the middle of the site would not receive tidal inundation. We recommend that additional channels be created in the central portion of the site so that it would also receive tidal influence. The maximum extent of tidal inundation and salt marsh restoration on the State parcel, consistent with the management goals of the California Department of Fish and Game, would satisfy our concerns for estuarine fishery resources. Since our concerns cannot be accommodated on the proposed shopping center site, we feel that the applicant should pay for all costs associated with "developing" a salt marsh on the State lands parcel.

We will be happy to work with the applicant, U.S. Fish and Wildlife Service, and the California Department of Fish and Game in developing an acceptable plan for the State parcel. Such a plan must be developed prior to issuance of any permit for the proposed activity and should be included in the Final EIS for this project.

If you wish to contact this agency further on this matter, please direct comments to Ms. Paget Leh at: National Marine Fisheries Service, 3150 Paradise Drive, Tiburon, CA 94920; phone (415) 556-0565.

Sincerely yours,

Floyd S. Anders, Jr.
Acting Regional Director

cc:
USFWS, J. McKevitt
CDF&G, D. Lollock
CRWQCB, N. Rial
Keith Hastings

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
630 Sansome Street
San Francisco, California 94111

1950
July 27, 1979

Department of the Army
San Francisco District, Corps of Engineers
211 Main Street
San Francisco, CA 94105

Gentlemen:

We briefly reviewed the draft environmental impact statement regarding the Novato Center Permit Application and found that it neither involves National Forest System lands nor is it concerned with the management, development, protection or use of forest and forest-range lands.

As such, the USDA - Forest Service has neither jurisdictional responsibilities nor agency expertise regarding this project. Therefore, we have no comments to offer.

The environmental impact statement is enclosed for use by another potential reviewer.

Sincerely,

for ZANE G. SMITH, JR.
Regional Forester

Enclosure

UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
PACIFIC SOUTHWEST REGION
BOX 36098 • 450 GOLDEN GATE AVENUE
SAN FRANCISCO, CALIFORNIA 94102
(415) 556-8200

ER 79/731 September 14, 1979

Colonel John M. Adsit
District Engineer
San Francisco District, Corps of Engineers
211 Main Street
San Francisco, CA 94105

Dear Colonel Adsit:

The Department of the Interior has reviewed the draft environmental statement for Regulatory Permit Application by Novato Center, Inc., Marin County, California (ER 79/731) and offers the following comments.

General Comments

1 The Environmental Statement addresses all of the general factors to be considered in the evaluation of the subject application. However, the Fish and Wildlife Service, as the representative of the Department of the Interior, has advised the Corps of Engineers, by letter of February 9, 1978 in response to public notice 10138-33, of its opposition to the project because of non-water dependency. As the letter withdrawing the objections of the State Resources Agency (Appendix B-33) has been included in the EIS, it is appropriate that the Service's letter of opposition be incorporated.

2 The statement should include a notice regarding project compliance or lack thereof, with Executive Order 11988, Floodplain Management, for Alternatives 2, 3, and 4. Alternative 5 would avoid location in the floodplain and therefore require no such notice.

3 We note that the sites for Alternatives 1 through 4 have been surveyed by Rick Hayes of the Anthropology Laboratory at Sonoma State University. We recommend that a copy of Mr. Hayes' report be provided to the State Historic Preservation Officer (SHPO) for his review and comment. All consultation with the SHPO should be documented in the final statement. Similarly, the study report for Alternative Site #5 should be submitted and the opinions of the SHPO addressed.

RESPONSES TO COMMENTS BY U.S. DEPARTMENT OF THE INTERIOR (14 September 1979)

1. The letter is included as Document B-5, Appendix B.

2. According to the Engineering Regulation implementing Executive Order 11988 on flood plain management (33 CFR 239) existing policies and procedures related to the regulatory program fulfill the requirements and intent of the Executive Order. Those policies require the Corps to: (a) evaluate flood hazards for actions in flood plains, (b) provide early public review for plans or proposals in flood plains, and (c) provide guidance to applicants to enable them to evaluate the effects of their proposal on the flood plain. These requirements have been met in the hydrology section of the Environmental Statement. All alternatives have been considered. It is noted that Alternative #5 is also in the 100-year flood plain (see Plate 5).

3. The Corps has provided the State Historic Preservation Officer (SHPO) with a copy of the cultural resources survey performed by Mr. Hayes for Study Areas 1-4 and a copy of the survey of Study Area 5 performed by Archaeological Research and Consulting Services. In a letter dated 7 April 1980, SHPO determined that there are no properties in or eligible for the National Register of Historic Places within the area of potential environmental impact and that the requirements of the National Historic Preservation Act of 1966 and 36 CFR 80 have been met.

4. This information has been added to paragraph 2.377.

5. See response to Comment #2.

6. This information has been added to paragraph 2.079.

7. Comment acknowledged.

8. This information is included in paragraph 2.078.

9. The working of paragraph 2.090(f) has been changed. The results of a wildlife census of the ponds have been included and indicate high wildlife use primarily by aquatic birds. It is noted that the diversity of habitats adjacent to the existing slough probably support a greater diversity of bird and animal species.

10. Both freshwater marsh and tidal marsh would be provided under the proposed mitigation plan for Alternative #2R. Freshwater marsh will be provided at the southern end of the project site, and if tide levels permit, water control devices will be installed to create tidal marsh on the southern portion of the State-owned parcel.

Although no commitments have been made, the base site (Alternative 5) has been looked at for recreational use by the City of Novato Parks and Recreation Department. Since the issue of future use of Hamilton Air Force Base has not yet been determined (an issue which will be placed on an upcoming ballot) future recreational development cannot be entirely ruled out. The original plans envisioned use of many of the existing base facilities (i.e., gymnasiums and hangars) for recreational purposes. Development of a regional shopping center would not only destroy the existing playing field, but could eliminate or greatly restrict use of other nearby facilities.

4

Specific Comments

Paragraph 1.27. Executive Order 11988 should be included as an appendix to this statement. The quote included is much too brief to give the intent of the Executive Order. The regulations of the Corps of Engineers indicating the procedures to be followed in complying with the Executive Order should also be either referenced or quoted at length.

5

Paragraph 2.023. This paragraph indicates that the Novato Creek levees have a "high potential risk of failure during flood conditions and/or high tides." The discussion should indicate the probable results of the failure of these levees and the effect of the project on these results, particularly the loss of storage capacity.

6

Paragraph 2.049(g). We concur in the recommendation for detailed flood-routing studies to determine the effects of the project on adjacent areas.

Paragraph 2.050. The alternative approach to site flood protection outlined in this paragraph would result in the loss of the well-developed wetlands found within the Novato Creek levees. This would be contrary to Executive Order 11990, Protection of Wetlands.

7

Paragraph 2.075(b). The frequent street sweeping should commence in the fall, prior to the onset of the winter rainy season.

8

Paragraph 2.087(f). The Fish and Wildlife Service does not agree that the "pond area" has "the highest wildlife use." The habitat diversity of the existing Lynwood Slough complex which includes the adjacent riparian vegetation, open field, and oak-studded knolls, attracts a much wider variety and, in the aggregate, probably greater numbers of wildlife.

9

Paragraph 2.098, Mitigation Suggested. The Fish and Wildlife Service does not agree that the "restoration of tidal marshland would be the most appropriate mitigation..." The habitats that would be destroyed include freshwater marsh, oak-savannah, seasonal marsh, and open grasslands. The basic objective for requesting compensation is to replace habitat in kind; saltwater marsh in exchange for freshwater marsh represents a trade-off. Furthermore, freshwater marsh is among the least available habitats in the San Francisco Bay Area.

10

Thank you for the opportunity to review this EIS. If you have any questions regarding these comments, please contact my office.

Sincerely yours,

Patricia A. Port

Patricia Sanderson Port
Regional Environmental Officer

cc:
Director, OEPR (w/copy incoming)
Director, Fish and Wildlife Service
Director, Heritage Conservation & Recreation Service
Director, National Park Service
Director, Geological Survey
Director, Bureau of Mines
Director, Office of Surface Mining
Commissioner, Bureau of Reclamation
Regional Directors
State Historic Preservation Officer

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
REGION NINE
Two Embarcadero Center, Suite 530
San Francisco, California 94111

ARIZONA
CALIFORNIA
NEVADA
HAWAII
GUAM
AMERICAN SAMOA

September 24, 1979

IN REPLY REFER TO

HED-09

Colonel John M. Adsit
San Francisco District Engineer
U. S. Army Corps of Engineers
211 Main Street
San Francisco, California 94105

Dear Colonel Adsit:

We have reviewed the Draft Environmental Impact Statement for the Novato Regional Shopping Center, Marin County, and offer the following comments:

1. The environmental impact statement should be of sufficient detail to identify all impacts associated with the proposed shopping center including traffic impacts. The projected increase of traffic congestion on U. S. 101 may warrant adding auxiliary lanes to U. S. 101. The final environmental statement should discuss the impacts of providing auxiliary lanes to U. S. 101. The proposed modifications to the Rowland Boulevard interchange shown in Plate 3 of the draft statement are of questionable purpose and design. Interchanges generally are not modified to provide additional area for proposed shopping centers. In any case, if Federal-aid highway funds are requested to modify the existing interchange or add auxiliary lane to U. S. 101 then our approval of the proposed modifications will be necessary. The subject EIS should be of sufficient detail that we will be able to approve modifications without undue further environmental assessment.

2. Further discussion is needed concerning the Northwestern Pacific Railroad which passes through the study area. How does this railroad line function in the corridor and to what purpose does it serve the proposed development.

RESPONSES TO COMMENTS BY U.S. DEPARTMENT OF TRANSPORTATION (24 September 1979)

1. A northbound auxiliary lane was recommended in the Hamilton Air Force Base DEIS to be added to U.S. 101 between the Ignacio Boulevard interchange and SR 37. Such a lane would alleviate traffic congestion for the short-term. To be effective for the long-term a change in commuter habits would be required. A possible change would be designating the auxiliary lane for high occupancy vehicle use (HOV) only. This designation would serve to alleviate congestion.

2. The original interchange design discussed in the Draft ES has been changed. A standard cloverleaf interchange with loop on-ramps in the northwest and southeast quadrant has been proposed. See Plate 13.

3. The developer of Alternative #2R would bear all freeway improvement costs. No Federal aid funds would be used.

4. There are eight to ten freight trains per day (four to five in each direction) on the Northwestern Pacific Railroad track on the eastern boundary of the project site. The trains do not pass on scheduled times, but can pass at any time of the day or night. There would be no passenger train service to any of the developments described in the ES.

5. See response #2.

3. The interconnection of ramps and shopping center access roads to create a triangular parcel of land containing financial institutions will cause driver confusion and may result in wrong way drivers on the freeway. We would recommend that the existing ramp terminal locations on Rowland Boulevard be retained.

5

Sincerely yours,

Mikell Tanner

Neil Dillabough, Director
Office of Environment and Design

OFFICE OF THE SECRETARY
RESOURCES BUILDING
1416 NINTH STREET
95814

(916) 445-5656

Department of Conservation
Department of Fish and Game
Department of Forestry
Department of Navigation and Ocean Development
Department of Parks and Recreation
Department of Water Resources

EDMUND G. BROWN JR.
GOVERNOR OF
CALIFORNIA

Air Resources Board
California Coastal Commission
California Conservation Corps
Colorado River Board
Energy Resources Conservation and Development Commission
Regional Water Quality Control Bd
San Francisco Bay Conservation and Development Commission
Solid Waste Management Board
State Coastal Conservancy
State Lands Commission
State Reclamation Board
State Water Resources Control Boa

THE RESOURCES AGENCY OF CALIFORNIA
SACRAMENTO, CALIFORNIA

Colonel John M. Adsit
District Engineer
U.S. Army Corps of Engineers
211 Main Street
San Francisco, CA 94105

SEP 13 1979

Dear Colonel Adsit:

The State of California has reviewed the draft environmental statement, "Novato Center, Regulatory Permit Application", submitted through the Office of Planning and Research in the Governor's Office. Comments have been received from the State Water Resources Control Board and the Departments of Fish and Game, Conservation, and Transportation. The Department of Transportation's comments are attached and the remaining comments are summarized in the following paragraphs.

STATE WATER RESOURCES CONTROL BOARD

1 The Board requests that the final report include a more complete description of the proposed use of reclaimed water (i.e., restricted or unrestricted use) and the impacts involved. Reclaimed water used for recreational purposes must be regulated by waste discharge requirements issued by the Regional Water Quality Control Board to the supplier and user. California Department of Health Services regulations would be used as a basis for these requirements.

A discharge of diluted reclaimed wastewater to waters of the State from the proposed pond would have to meet the requirements of the Basin Plan adopted by the Regional Board. These requirements state that:

"It shall be prohibited to discharge:

1. Any wastewater which has particular characteristics of concern to beneficial uses:

   ...

   b. At any point at which the wastewater does not receive a minimum initial dilution of at least 10:1.

RESPONSES TO COMMENTS BY THE RESOURCES AGENCY OF CALIFORNIA (13 September 1979)

1. Use of reclaimed wastewater is not planned for the proposed project.

2. Runoff from the project site will discharge into the channel on the east side of the railroad tracks, and if runoff is great enough, into the proposed lake. The lake and channel will retain the water until the channel has been drained by the pumps at which time the water level in the lake will drop to -5 feet (MSL). The lake is intended to provide both flood storage (approximately 100 acre-feet) and waterfowl habitat due to the year-round presence of water and some wetland and surrounding upland vegetation.

3. Paragraph 2.099 has been changed.

4. The site is safe to build on provided a full and detailed soils investigation is done and the resulting design recommendations are followed. The only hazards likely to be significant are ground shaking from a major earthquake and lateral spreading in the vicinity of unsupported slopes (Novato Creek). These risks are reduced through the state-of-the-art engineering and design practices developed for construction on the thousands of acres of fills over bay mud in the San Francisco Bay area. Included in the design recommendations will be areal settlement estimates, surcharge loads and time periods, slope setbacks, special foundation design and tolerable differential settlement rates.

...and...

c. Into any wetland water or dead-end slough or similar confined water areas or their immediate tributaries."

It should be noted that exceptions to the above will be considered by the Board where a discharge is approved as part of a reclamation project or where it can be demonstrated that environmental benefits will be derived as a result of the discharge.

DEPARTMENT OF FISH AND GAME

DFG recommends that the report be revised and clarified according to the comments that follow.

2 Page 18 states that the runoff from the project site would be collected and discharged into the lake. The lake would act as a retention pond and sump for the existing pump station. On page 28, however, it is proposed to install weirs on Lynwood Slough and near the flood control pumps to provide more constant water level in the proposed lake. This would hold the lake at a predetermined level after the channel has been drained by the pumps. From this, it appears that two inconsistent uses are proposed. The apparent conflict should be resolved and a determination made as to the use of the proposed lake. To be considered part of the compensation plan, the lake should not be used as a retention basin.

3 Page 28 also states that the proposed mitigation plan has been approved by DFG. While the Department has been working with the applicant to develop a mitigation plan and agrees with most of the proposals, there may be some problems in obtaining adequate water circulation in the southern part of the state parcel. DFG will continue to work with the applicant to resolve this.

DEPARTMENT OF CONSERVATION

4 The Department is greatly concerned with the location of a shopping center on such unstable material as bay sediments. This creates a potential threat to human life in the event of seismic activity. The report should indicate what measures would be used to mitigate this potential impact.

Page Three
Colonel Adsit

REVIEW REQUIREMENTS

The State's review, which fulfills the requirements of Part II of Office of Management and Budget Circular A-95, was coordinated with the Departments of Conservation, Fish and Game, Parks and Recreation, Water Resources, Food and Agriculture, Health Services, and Transportation; the Air Resources, Solid Waste Management, and State Water Resources Control Boards; and the State Lands Commission.

We appreciate having been given an opportunity to review this report.

Sincerely,

JAMES W. BURNS
Assistant Secretary for Resources

Attachment

cc: Director of Management Systems
Office of Planning and Research
1400 Tenth Street
Sacramento, CA 95814
(SCH 79060710)

STATE OF CALIFORNIA—RESOURCES AGENCY

EDMUND G. BROWN JR., Governor

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
1111 JACKSON STREET, ROOM 6040
OAKLAND 94607

Phone: Area Code 415
464-1255

October 12, 1979

File No. 2158.04(NAR)mam

Colonel John M. Adsit
District Engineer
U. S. Army Corps of Engineers
211 Main Street
San Francisco, CA 94105

Dear Colonel Adsit:

The San Francisco Bay Regional Water Quality Control Board staff has reviewed the Draft Environmental Statement (D.E.S.), Novato Center, and filed comments as shown in the attached letter to the City of Novato Planning Department, dated March 30, 1979.

We have no further comments at this time, but having failed to direct our original remarks through your office, we are taking the opportunity to do so now.

If you have any questions regarding these comments, please call Mr. Lester Feldman at (415) 464-0399.

Sincerely,

NORMAN A. RIAL
Certification Section

Enclosure:
Letter of
March 30, 1979

cc: Ms. Jody Zaitlin
U. S. Army Corps of Engineers
Environmental Branch, Room 809
211 Main Street
San Francisco, CA 94105

RESPONSES TO COMMENTS BY REGIONAL WATER QUALITY CONTROL BOARD (30 March 1979)

1. None of the alterntives considered include the use of reclaimed wastewater.

2. The State Resources Agency has determined that the Wetlands Policy does not apply to Study Areas 1-4. Work on the State Parcel which would be performed under Alternative #2R is being coordinated with the Department of Fish and Game.

...ORNIA—RESOURCES AGENCY
...ORNIA REGIONAL WATER QUALITY CONTROL BOARD
FRANCISCO BAY REGION
... JACKSON STREET, ROOM 6040
...AKLAND 94607
EDMUND G. ... JR., Gov...
Phone: Area Code 415
464-1255

March 30, 1979

File No. 2158.02(:F)mam

Brian Mattson
Planning Department
City of Novato
City Hall
Novato, CA 94947

Dear Mr. Mattson:

DEIR, Novato Regional Shopping Center

I have reviewed subject DEIR and have the following comments:

1. Reclaimed wastewater from the Novato Sanitary District was mentioned as a possible supplementary water supply source to stabilize lake levels at a proposed 37-acre lake. I request that you describe more fully the proposed use and impacts of the reclaimed water, i.e. restricted or unrestricted recreational use. Reclaimed water used for such a purpose would have to be regulated by waste discharge requirements issued by this Regional Board to the supplier and user. State Department of Health regulations would be utilized as a basis for these requirements. Present regulations, for an example, state that reclaimed water used as a source of supply in a restricted recreational impoundment shall be at all times an adequately disinfected, oxidized wastewater. The wastewater shall be considered adequately disinfected if at some location in the treatment process the median number of coliform organisms does not exceed 2.2 per 100 milliliters, as determined from the bacteriological results of the last 7 days for which analysis has been completed.

1

Furthermore, a discharge of diluted reclaimed wastewater to waters of the State from the proposed pond would have to meet the requirements of the Basin Plan adopted by this Regional Board which states that:

"It shall be prohibited to discharge:

1. Any wastewater which has particular characteristics of concern to beneficial uses:

...

b. At any point at which the wastewater does not receive a minimum initial dilution of at least 10:1.

... and ...

c. Into any nontidal water or dead-end slough or similar confined water areas or their immediate tributaries."

It should be noted that exceptions to the above will be considered by the Board where a discharge is approved as part of a reclamation project or where it can be demonstrated that environmental benefits will be derived as a result of the discharge.

2. All uses proposed for the subject site should be in conformance with the policies (e.g., Resources Agency Wetlands Policy) and master plan established by the Department of Fish and Game.

If you have any questions, please contact me at (415) 464-0399.

Sincerely,

LESTER FELDMAN
Area Engineer

cc: Charles A. Joseph
Novato Sanitary District

Jim Swanson
Department of Fish and Game
Yountville

Robert Hultquist
California Department of Health Services
Berkeley

STATE OF CALIFORNIA—BUSINESS AND TRANSPORTATION AGENCY
EDMUND G. BROWN JR., Gov
DEPARTMENT OF TRANSPORTATION ACL
P. O. BOX 3366 RINCON ANNEX
SAN FRANCISCO 94119
(415) 557-1840

August 31, 1979

04-Mrn-37, 101
SCH#79080710
PN 10138-33

Colonel John M. Adsit
District Engineer
San Francisco District
Corps of Engineers
211 Main Street
San Francisco, CA 94105

Attention Mr. Dennis Cerese
Regulatory Functions Branch

Subject: Comments on the DEIS for the Novato Center Regulatory Permit Application in Marin County, California, Public Notice 10138-33

Caltrans, District 4 has reviewed a DEIR for the development of the same parcel with the City of Novato as the Lead Agency. We have exchanged comments and responses on items of our concerns and needs as they may affect the State Highway right of way, facilities and traffic operations. At this writing many issues still need to be resolved, mostly traffic (operations and design) and drainage.

Our involvement with the City concerning the project has been complex and time consuming. Much of the traffic information in this DEIS appears to be about the same as that in the initial DEIR. 1 We suggest that the Traffic (and circulation) portion of this DEIS be deleted and refer to the Traffic portion in the Final EIR for that information or be edited to reflect that information and data. We believe this will be a better approach for these disclosures as other agencies probably have input or comments on the subject. Paragraph 1.20 on page 5 second sentence should change "Draft" to "Final" EIR.

2 We believe it to be appropriate to make an addition to paragraph 1.19 on page 5 to indicate that the EIS is to be adequate to cover all Federal approvals and actions. The FHWA will be involved with this project proposal since interchange revisions to the freeway requires their approval.

RESPONSES TO COMMENTS BY CALIFORNIA DEPARTMENT OF TRANSPORTATION
(31 August 1979)

1. The design of the proposed freeway ramps and surface streets has been modified by the project developer since the publication of the Final EIR. The traffic section in this EIS assesses the traffic and circulation impacts of the plan as presently proposed.

2. The project developer will assume all costs for the proposed improvements to the freeway. Federal highway aid funds will not be used to the FHWA will not be involved with the project. See FHWA comment letter (Document F-8).

3. The correction is noted in paragraph 2.030.

4. A site plan for Alternative #2R with the proposed culvert locations is included as Plate 3.

5. See paragraph 2.043.

6. As presently proposed, Alternative #2R does not include the installation of additional pumps. If after completion of the detailed flood routing analysis, it is determined to be necessary, the pumps would be added.

7. The correction has been made in paragraph 2.045.

8. Under 100-year flood conditions and using the National Flood Insurance Program (FIA) maps, the Corps of Engineers estimates the flooding in the Scottsdale area to range from elevation 9 feet (MSL) at the Scottsdale pond to elevation 11 feet (MSL) westerly of South Novato Boulevard. For example, at elevation 9 feet (MSL) the ponding in the Scottsdale area has expanded to a surface area of 163 acres and has a ponding capacity of 690 acre-feet. Elevation 9 feet (MSL) is calculated to be the depth of water necessary to pass 2,000 cfs (100-year flow) through the existing 6' x 10' culvert under the highway and over the highway for a length of approximately 1,300 feet. The sag in the highway profile is at Station 284+46 with an elevation of 7.2 feet.

9. The backed up water level in the State owned parcel will not be caused solely by the lost storage displaced by the proposed development. The total loss in ponding capacity resulting from this development is 13% or from 2,650 acre feet to 2,200 acre-feet at elevation 7.0 feet (MSL). The calculated 100-year flood flow into the Scottsdale area is 3,750 acre-feet. (Corps of Engineers.)

It is also noted in paragraph 2.046 that as a result of high water levels in the State owned parcel the capacity of the proposed culverts would be reduced and the parking areas would be subject to shallow flooding. If the level in the State owned parcel became high enough (all noted flood events occurring in combination) the level in the interchange would rise to the level of highway overflow to provide the necessary head to convey most of the highway overflow across the parking areas at elevations 6-7 feet. It is evident that the State owned parcel and the parking areas would be inundated before the freeway overflow is impeded.

RESPONSES TO COMMENTS BY CALIFORNIA DEPARTMENT OF TRANSPORTATION
(31 August 1979) (Cont'd)

10. No flood routing analysis was prepared for the Final EIR. Such an analysis will be performed with the final design of the drainage system. The intent of the drainage system described in the Final EIR and EIS is to collect the 100-year flood flow through the existing highway culvert and highway overflow and convey it through the project area.

11. Paragraph 2.057 includes this information.

12. Flood level information as derived by the Corps of Engineers studies for the FIA is the accepted drainage design criteria by the City of Novato and Marin County Flood Control and Water Conservation District. Any development within Novato is compelled by local ordinance to meet these requirements for flood protection. Hydraulic calculations and details will be forwarded to Caltrans for review and approval as part of the final drainage system design. The project applicant has sent Caltrans a copy of the Coleman, Selmi and Simpkins, 1975 report and a copy of the Corps of Engineers study is being forwarded with a copy of this Final Environmental Statement.

13. Paragraph 2.262 has been changed accordingly.

NOTE: The copy of Caltrans' letter of 19 April 1979 is not included because it comments on the FEIR prepared for this project, and the circulation plan proposed by the applicant has been modified since publication of the FEIR.

We believe reference to the FEIR should also be made to drainage issues in your hydrology section. We do have specific comments that follow:

3 Par. 2.024, Line 4 - we believe that the "outlet weir" or sill is at elevation 0' MSL rather than +3' MSL. In addition, the elevation on which the 10-acre pond is based should be noted.

4 Par. 2.033, Line 12 - the approximate location of the second 20'x6' culvert should be shown on an exhibit along with other drainage facilities mentioned or discussed.

5 Par. 2.036, Last sentence - the freeway design is based on a 100-year criteria. If the parking area is not designed to pass the 100-year flow, adverse effects to the freeway will result.

6 Par. 2.037, Presently, if the Lynwood Slough pumps become inoperative the low lying area of the project site will provide adequate storage until the operation of the pumps is restored. Under the proposed developed condition, it is not clear if any mitigation measures such as standby pumps will be provided to at least maintain or lower the existing ponding level.

7 Par. 2.038, Last sentence - This sentence, we believe, should be, "Water leaves the Scottsdale Pond either through the Lynwood Slough culvert or through the Lynwood Slough culvert with overtopping of the freeway."

8 Par. 2.039, First sentence - This sentence seems to imply that water will pond up to or above the freeway sag and, thus, cause overflow. Since the sag at the freeway proper is about 6.7 feet msl, a substantial area outside of the Scottsdale Pond proper would be inundated should the water reach that level. This flooding would spread out to South Novato Boulevard and the edge of all the surrounding residential developments in the vicinity. The pond would no longer be just the "10-acre" pond (see Par. 2.024), but one that would be approximately 160-acres.

9 Par. 2.039, Sentence no. 3 - We are not yet convinced that the weir flow of 2,000 cfs over the freeway will occur with the 100-year storm event. However, assuming that freeway overflow does occur, the backed up water level in the State owned parcel will be caused by the lost storage displaced by the proposed development. Since the parking areas would be constructed at elevations +6 feet to +7 feet, the State owned parcel as well as the parking areas will be inundated before the weir flow over the freeway is impeded.

10 Par. 2.049g, Results of the Flood Routing Analysis that is to be part of the EIR should be made a part of the Final EIS (see pages 16 and 17, paragraphs 2.042, 2.044, 2.049g, of the DEIS). The result should unequivocally indicate that the potential maximum water surface level, frequency and duration of flooding after development be no greater than the existing flooding potential of the highway.

11 Par. 2.050, This alternative is the basis of State Freeway Design.

General Except for Alternative 5, there may be significant adverse effects to the State highway as a result of the fill and loss of storage as proposed by these alternatives.

12 CALTRANS should be given the opportunity to review and approve the final drainage plan. At that time, we will need additional information to make a proper study. This information must include a more complete copy of the report prepared by Coleman, Selmi and Simpkins (1975), a current understanding of the master drainage plan for this area, the USCE report (USCE, Environmental Impact Statement, Flood Control Novato Cr. & Tributaries, Marin Co., Calif. 1973), and a more detailed grading and drainage plan of the proposed development.

13 Paragraph 2.248 on page 67 should be revised to reflect that BCDC jurisdiction extends 100 feet inland from the line of highest tidal action, not 100 feet from MHW.

Attached is a copy of our letter of April 19, 1979 to the State Clearinghouse that transmitted our comments on the DEIR for the Novato Regional Shopping Center, State Clearinghouse No. 78100981. This is being done so that you can be aware of the magnitude of issues that need to be resolved.

If any other information is needed concerning these comments, please contact:

Caltrans District 4 CEQA Coordinator
Engineering Services Branch
P. O. Box 3366 Rincon Annex
San Francisco, CA 94119
Telephone (415) 557-2448

We request a copy of the Final EIS for this project and also pertinent actions that may affect the approval process.

Sincerely yours,

T. R. LAMMERS
District Director

By Vernon J. Richey
VERNON J. RICHEY
Deputy District Director

Attachment

ABAG
Association of Bay Area Governments
Hotel Claremont · Berkeley, California 94705 · (415) 841-9730

September 7, 1979

Mr. Dennis Cerese
Environmental Protection Specialist
Action Officer for Permit No. 10138-33
Regulatory Functions Branch
S.F. District Corps of Engineers
211 Main Street
San Francisco, CA 94105

Dear Mr. Cerese:

Thank you for the opportunity to comment on the Novato Center DES. Attached are ABAG staff comments on the General Services Administration's DEIS for the disposition and use of Hamilton Air Force Base. 1 These comments were incorporated into the ABAG A-95 review of the Eastern Marin/Southern Sonoma Wastewater Management Plan and therefore represent current policy on Alternative 5 in the Novato Center DES.

If you have any questions, please call me.

Sincerely,

Charles Q. Forester
Director of Planning

Attachment

RESPONSES TO COMMENTS BY ASSOCIATION OF BAY AREA GOVERNMENTS (7 September 1979)

The comment letter and attachment of ABAG represent the current ABAG policy on Alternative #5. It is noted that Alternative #5 would be supportive of the policy to provide commercial development and community public facilities to the region.

ABAG
Association of Bay Area Governments
Hotel Claremont · Berkeley, California 94705 · (415) 841-9730

June 8, 1979

Director, Real Property Division (9 DR)
Federal Property Resources Service
General Services Administration
525 Market Street M/S 41
San Francisco, CA 94105

RE: Draft Environmental Impact Statement (DEIS)
on Disposition and Use of Federal Surplus
Property at Hamilton Air Force Base

Dear Sirs:

Thank you for the opportunity to comment on the subject DEIS. ABAG has reviewed the document and is forwarding the following comments. ABAG's Executive Board has not taken a position on this document or the proposed project except as indicated herein.

Staff feels that the DEIS discussion (Sections I-21, VI-11) of the relationship of various alternatives to local and regional policies should be supplemented to respond to other regional issues cited below.

Regional policies support job and housing development which reduces reliance on the automobile and long home-to-work commuting. (ABAG General Assembly Resolution, October 1973). Sprawl development and related long commutes have several adverse impacts:

- Degradation of air quality due to increased automobile emissions associated with greater number of vehicle miles traveled.
- Inefficient consumption of energy for both automobile and domestic fuel purposes.
- Congestion of local road and regional highway systems due to increased vehicle loading.
- Fiscal strain for taxing jurisdictions saddled with responsibilities of providing services to resident workers whose employers pay property and other taxes to other jurisdictions.
- Conversion of critical environmental areas to urban uses.

Land use can play an important role in addressing the above concerns. It is in this context that staff has reviewed various alternative uses for Hamilton AFB. Staff would suggest that those alternatives which exacerbate the aforementioned problems be avoided; while those alternatives which mitigate the identified impacts be promoted.

Staff has identified the following land uses as potentially consistent with regional policies. Staff urges that the DEIS be expanded to include an analysis either confirming or denying the staff judgments discussed below. Although in combination the uses suggested below constitute another scenario, the impacts of the uses already are analyzed in the draft EIS.

Office and Industrial Development

It is staff's view that a portion of the site should be reserved for private and public sector office complexes and other industries that would employ significant numbers of the labor force in the surrounding labor market area who are presently commuting long distances to work. The objective here would be to achieve a net reduction in vehicle miles traveled over present commute patterns (taking into account additional trips from Sonoma County to future Hamilton AFB job sites). Office uses which support San Francisco headquarters offices and even office uses with relatively independent functions, e.g., consulting, engineering, advertising, research, should be promoted.

It is staff's opinion that office and industrial uses as defined above would be consistent with the following regional policies:

- Maximum employment opportunities should be available to residents within their own communities (Regional Plan 1978).
- Living, working, and shopping within the same community should be planned and promoted by all levels of government and the private sector (Ibid.).

The fiscal base generated by the above office and industrial development should help defray associated public service costs including necessary environmental and public safety measures not absorbed by the developers. (ABAG General Assembly Resolution, October 1974). Given the potential for centralization of new job development, vanpools, staggered work hours, and improved public transportation to the job sites should be fostered to further reduce auto dependency.

A second criterion for selecting office and industrial uses is whether they provide employment opportunities for the under- and un-employed in the surrounding labor market area. Such opportunities are consistent with the following regional policy:

- Special justification shall be required for projects that would diminish access to jobs for all and especially disadvantaged groups or increase regional dependency on long job-residence commuting (ABAG General Assembly, Implementation Action B, October 1974).

Low- and Moderate-Income Housing

The Hamilton AFB site represents one of the few large remaining tracts available for development in Marin County. Given the degree of unmet housing needs in the County, (i.e., overcrowding, displacement, new households, replacement of substandard housing, and lack of affordable housing for the existing and future work force), a portion of the site should be reserved for low- and moderate-income housing, especially family housing. The moderate-income housing currently on the site should be retained and conserved. Staff feels that these uses would be consistent with the following regional policies:

- In its plan and project review function, ABAG will comment on:
  - Proposed actions that would cause a decrease in housing opportunities for lower-income people, and
  - Plans that fail to demonstrate a commitment to expanding housing opportunities for lower-income people consistent with regional policies (Regional Housing Element: Regional Plan 1978).
- Housing that is presently within the price range of lower-income people should be preserved wherever possible and practical (Ibid.).

Wetland Preservation

Portions of the site that contain habitats of rare or endangered fish and wildlife that contribute to the diversity of species should be preserved as such--e.g., Parcels 15 and 16. (Areas of Critical Environmental Concern, Lands for Resources Preservation, Fish and Wildlife, ABAG)

Where wetland preservation use must give way to either of the two uses identified above (possible in connection with part of Parcel 14), the restoration of tidal marshes may create alternative habitats. Preservation of Parcels 15 and 16 would also be consistent with ABAG policies of:

- Protecting flood plains of multi-jurisdictional rivers and streams;
- Protecting areas subject to inundation by dam or dike failure; and
- Helping ensure that adequate commitment is made to earthquake hazard reduction.

Commercial Development and Community Public Facilities

A portion of the site should be reserved for local population-serving commercial and public use in connection with the industrial and housing growth suggested above. No portion of the site should be reserved for large scale commercial development which can be shown to have significantly adverse effects on existing commercial concentrations in Novato and San Rafael. Staff feels that this is consistent with regional policy that urges that:

- Communities should evolve through the organizing and strengthening of existing developed parts of the region (Regional Plan 1978).

Airfield and Related Aviation Facilities Preservation

Existing Regional Airport Planning Committee policy proposes airline service to the North Bay. This proposal provides service for 1 million annual passengers by 1987-1990 at one of the existing North Bay airports, including Hamilton Field. The specific location of the airport would be determined after a comprehensive North Bay aviation study jointly conducted by MTC, ABAG and North Bay communities.

If we may be of assistance in responding to the aforementioned request for additional analysis, please do not hesitate to contact me.

Sincerely,

Charles Q. Forester
Director of Planning

A-95 Report #119-79
WPCC 7/12/79

ASSOCIATION OF BAY AREA GOVERNMENTS
WORK PROGRAM AND COORDINATION COMMITTEE
GRANT APPLICATION SUMMARY AND RECOMMENDATION
July 12, 1979

PROJECT IDENTIFICATION

Applicant: Novato Sanitary District (Lead Agency)

Program: Construction Grants for Wastewater Treatment Works
Environmental Protection Agency

Project: Eastern Marin/Southern Sonoma Wastewater Treatment Facilities - Step 2

Received: Notice of Intent and DEIR/S - May 24, 1979

Cost: Total Funds $10 million; Federal Grant Request $7.5 million; State Funds $1.25 million; Local Funds $1.25 million

PROJECT DESCRIPTION

The service area for this project includes all of urbanized Marin County from Sausalito north through Novato and Petaluma in Sonoma County. Major facilities improvements are discussed as follows.

COMMENT

Water Quality

This project is consistent with three water quality management policies in ABAG's Environmental Management Plan: those calling for 1) municipal sewerage service and water quality protection, 2) consolidation of treatment and discharge facilities, and 3) accelerated reclamation and reuse of waste water. All projects are listed in the EMP twenty-year municipal facilities list and are being sized in accordance with ABAG's Series 3 population projections (see discussion of secondary impacts).

The projects discussed below have also been designed to achieve compliance with the Basin Plan. In southern and central Marin, facilities plans call for secondary treatment facilities in conjunction with effluent discharges to deep water locations at Raccoon Strait, Sausalito, and Point San Quentin.

From the Marin Bay area north through Petaluma, wastewaters will be reclaimed during summer months to eliminate shallow water discharge during dry weather periods. Existing discharge facilities are being upgraded for use during wet weather months. In order to correct infiltration/inflow problems from

wet weather flows, advanced treatment is planned to achieve 85% BOD and total suspended solids removal, although exact facilities plans are uncertain presently. The need to undertake these improvements to treat wet weather flows has significantly increased the cost of new facilities.

The major consolidation planned involves the abandonment of the existing Ross Valley, San Rafael, and San Quentin facilities and the construction of a subregional treatment plant and deep water outfall for the central Marin area. In northern Marin, the Hamilton and Bahia treatment plants will be abandoned with wastes transported to the Ignacio and Novato treatment plants, respectively. Also, a new common outfall pipeline will be constructed to serve Mill Valley, Richardson Bay and Sausalito.

Staff notes that this plan involves a tradeoff between consolidation and reclamation. In northern Marin and Petaluma, the decision to undertake reclamation during dry weather periods eliminated the need to extend and/or consolidate outfalls for deep water discharge. In both northern and southern Marin, the facilities plan is advantageous in both implementing reclamation projects (northern Marin) and retaining the flexibility to undertake reclamation in the future (southern Marin).

Growth-Inducing Impacts

EPA has established a policy that wastewater project design capacities be in conformance with ABAG projections (February 1, 1979 letter from Alan Abramson, EPA, to Charles Joseph, Novato Sanitary District). The State of California has used ABAG projections to determine grant eligibility amounts. The EPA policy applied on a regionwide basis precludes local wastewater projects from accommodating population growth cumulatively in excess of the projections used in the Regional Air Quality Plan.

In EPA's execution of this principle, ABAG urges that projections not be applied simplistically, and that, in each individual circumstance, projections be viewed in light of specific local circumstances (Livermore Wastewater Treatment Plant Expansion, A-95 Report #143-78; Guidelines for Use of Series 3 Projections; East Bay Dischargers Project, A-95 Report #114-76). As projects are reviewed, projections need to reflect their circumstances and be revised accordingly, maintaining regional totals consistent with the adopted Air Quality Plan.

In reviewing the design capacity assumptions for the Eastern Marin/Southern Sonoma Project, staff finds the proposed project will not accommodate significant growth in employment and/or housing at the Hamilton Air Force site in Novato. While the future of Hamilton is not yet decided, the wastewater project should recognize that substantial growth could occur there. This project should not be further delayed, but staff believes that the design of new facilities should take into account potential growth. Technologies exist that will permit such phasing of capacity, and EPA is urged to allow the flexibility for this phasing to occur. ABAG is also willing to work with the District, Marin County and the City of Novato to draw up more complete plans for the development of the Hamilton site as the wastewater project proceeds.

In its review of the Hamilton Air Force Base site disposition Draft EIS, staff identified those land uses felt to be generally consistent with regional policies. The policy analysis contained in the attached letter, incorporated by reference herein, is recommended for approval as part of this report. In this letter, the following land uses for Hamilton Air Force Base were suggested:

- o certain types of office and industrial growth;
- o low- and moderate-income housing;
- o wetlands preservation;
- o commercial development and community public facilities; and
- o airfield and related aviation facilities.

Hamilton Air Force Base is within the service area of the Novato Sanitary District which would provide service from its Ignacio Treatment Plant. The current project assumes that future wastewater flows will be the same when the Base was in full operation. As such, the project would accommodate wastewater flows for an equivalent population of 3000 by the years 1991 and 2001. More than 1000 people now reside on the Base, and this land use is expected to continue. New proposed capacity would permit an additional 2000 residents and no other growth, e.g. employment.

The Draft EIS for Hamilton Air Force Base disposition estimates that a capacity of up to 1.78 mgd would be needed to serve the most intensive development alternative currently under consideration for the site. The proposed capacity for Hamilton is 0.27 mgd. If design capacity of the project is limited to 0.27 mgd, a number of development options for Hamilton Air Force Base would be foreclosed or delayed until a new facilities project is planned.

RECOMMENDATION

Staff recommends that the project be approved with the understanding that EPA permit modifications to the facility design to accommodate future development at Hamilton Air Force Base in a manner consistent with identified regional policies.

Marin Audubon Society Box 441 Tiburon, California 94920

20 September 1979

Public Notice No. 10138-33
Novato Center Draft Environmental Statement

Colonel John M. Adsit
District Engineer
U. S. Corps of Engineers
211 Main Street
San Francisco, CA 94105

Dear Colonel Adsit:

The Conservation Committee of the Marin Audubon Society submits the following comments on the Draft Environmental Statement pertaining to the Hahn Novato Regional Shopping Center. We refer to our letter of 8 May to the Novato Planning Commission. On page three, next to last paragraph, we comment on 'Removal of a knoll for fill'. Comments then are the same now: We strongly oppose the removal of the knoll with trees to generate 20,000 cubic yards of fill--a very minor portion of the total fill needed. Surely an imaginative design can turn the knoll and its trees into a visual asset to break the general flatness of the area. End of quote.

1

We have not changed our position. We do not want to see the oak knoll encompassed in the northerly section removed, in order to make room for the layout of present and current building and parking area design. Wiping that knoll clean and flat merely to provide 20,000 cubic yards for fill, or holding fast to current parking lot or building design, so that minor architectural changes wouldn't offer a relatively simple solution, is very upsetting to us. We feel that with relatively minor changes, this knoll could be left in its singularly attractive state.

Also referring to the southern section, while it does not appear that this other hill will be affected directly, the necessity of cutting a road up, over, or through, must be handled with complete care.

Repeating our point in the second paragraph, we feel that that oak knoll section, if left as is, with the chance to continue growth, would be inordinately attractive to the Hahn Shopping Center development, and definitely should be allowed to remain.

Yours very truly,

Paul R. Eastman
Chairman
Audubon Conservation Committee

cc: [illegible]

F-45

Marin Audubon Society Box 441 Tiburon, California 9492C

4 October 1979

Ref: Public Notice
#10138-33
Novato Center DES

Colonel John M. Adsit
District Engineer
U. S. Corps of Engineers
211 Main Street
San Francisco, CA 94105

Dear Colonel Adsit:

In our letter dated 20 September 1979 we neglected to refer specifically to the wildlife of Lynwood Slough, and the effedts on this slough by construction of the Novato Center. The proposal to fill the slough so that the Novato Center can be constructed will have a major effect on the ecological values of the area. A regional shopping center of this size just cannot be designed to co-exist with Lynwood Slough. There must be more space between the Slough and the Center in order to permit the wildlife of the slough any but the slightest chance of survival. Wildlife and vegetation always lose in a situation such as this. The creation of the 37 acre lake east of the railroad tracks we do not feel is an adequatesfor Lynwood Slough and the Oak area as shown.

2

We request that you add this to our letter of 20 September referred to above. Our apologies for the delay.

Yours very truly,

Paul R. Eastman
Chairman, Conservation Committ
Marin Audubon Society

Document [illegible]

RESPONSES TO COMMENTS BY MARIN AUDUBON SOCIETY (20 September 1979)

1. Alternative #2R has been revised by the permit applicant to retain the existing knoll and incorporate it into the design of the shopping center. See Plate 3.

(4 October 1979)

2. The revised Alternative #2R would fill 4.07 acres of the existing slough and retain 4.9 acres of slough. An additional 6.8 acres of wetland would be created on the project site for a net gain of 2.77 acres of wetland. It is acknowledged that the new wetland areas will be in close proximity to the proposed shopping center.

M&M

September 7, 1979
File: 3721-020

Colonel John M. Adsit
U. S. Army Corps of Engineers
211 Main Street
San Francisco, CA 94104

Subject: Comments to Draft EIS, Novato Center, Marin County

Dear Colonel Adsit:

In reviewing the Draft EIS, we have the following comments.

1. Paragraph 2.238 (page 65) states that the site is within the F-3 (Flood Plain) district. The City F-3 (Flood Plain) district boundaries do not include the subject property. There are no other City flood zones or restrictions on this property. The County Flood Control District holds easements permitting flood ponding of portions of the property east of the railroad (now State property). These flood ponding easements do not extend west of the railroad in the Novato Center development area. The Flood Control District does have jurisdiction over the easement containing Lynwood Channel through the development area west of the railroad.

1

2. Paragraph 2.231 (page 63) describes present land uses north of the site, on Redwood Boulevard, as containing a K-Mart. There is no K-Mart store in Novato or Marin County. The 20-acre commercial site north of Rowland Boulevard and immediately adjacent to the regional center was, at one time, planning a K-Mart store. K-Mart has dropped the site and the property has been sold. The present owner has not announced any prospective tennants for his proposed commercial development to this date.

2

3. Paragraph 2.037 (page 15) states that water levels could rise to approximately 8 feet (msl). This does not agree with paragraphs 2.020 and 2.021, or with the Hydraulic Appendix B, page 12, Draft EIR, Novato Regional Shopping Center, March 1979. Per Flood Insurance Maps (HUD-FIRM) the 100-year flood level east of Highway 101 is elevation 7 feet (msl).

3

RESPONSES TO COMMENTS BY M & M CONSULTANTS (7 September 1979)

1. Reference to the flood plain district has been deleted.

2. Reference to the K-Mart store has been deleted.

3. The appropriate paragraph has been deleted.

4. The California Regional Water Quality Control Board may require certification of the project or they may issue a waiver of discharge requirements. This information is in paragraph 1.34.

5. This information has been added to paragraph 2.104.

6. Reference to a supplementary water supply has been deleted. Alternative #2R as revised would provide for a deeper water level in the lake at the beginning of the summer dry season.

7. Paragraph 2.047 has been corrected accordingly.

(10 September 1979)

8. See paragraph 6.13.

September 7, 1979
File: 3721-020

Colonel John M. Adsit
Page 2

4. Paragraph 1.31 (page 7). R.W.Q.C.B. will require certification of the project. They have indicated verbally on this date that certification may not be required for this project. The introduction of reclaimed wastewater to the lake would be under their jurisdiction; however, the developer is not proposing to use reclaimed wastewater.

5. Paragraph 2.104-f (page 28) mentions a ditch or fence to prevent access. The developer's Wildlife Plan proposes a ditch and fence to prevent access.

6. Paragraph 2.049-a (page 17) states that to maintain stable lake levels throughout the summer and fall, a supplementary water supply should be provided. The developer's Wildlife Plan also proposes a method of maintaining a deeper lake level during the summer and fall, which better addresses Mosquito Abatement concerns than a shallow lake of a stable level. The stable level causes problems of control of mosquito larvae in the shoreline vegetation. A varying level allows the mosquito fish to better control the larvae.

7. Paragraph 2.040 (page 15) states the additional culverts and fill could increase the obstruction of the weir flow. The weir flow occurs over Highway 101 with a water level of 9.2 (msl) during the 100-year flood level. The maximum 100-year flood level on the subject property is approximately 7 (msl). This lower water level downstream from the highway would not obstruct the higher weir flow over the highway. The reduction of culvert capacity under the highway when flood levels downstream are at maximum levels would result in increased weir flows over the highway, and not an obstruction of the weir flow. The 100-year weir flow over Highway 101 is estimated to be 1200-1300 feet long and one foot deep, per previous Corps studies.

The main areas that we have reviewed are the geologic, hydraulic, and water quality sections. Basically, the statements are complete

September 7, 1979
File: 3721-020

Colonel John M. Adsit
Page 3

and accurate, and adequately describe the conditions. We feel that there are a few opinionated statements, but they are not significant enough to mention.

We appreciate the opportunity to review and comment on the Draft EIS.

Yours very truly,

M & M CONSULTANTS, INC.

Keith Hastings

KH/mr

M&M

September 10, 1979
File: 751-020

Colonel John M. Adsit
U. S. Army, Corps of Engineers
211 Main Street
San Francisco, CA 94104

Subject: Comments to Draft EIS, Novato Center, Marin County

Dear Colonel Adsit:

The City of Novato has asked us at what stage the Corps considers local authorization has been obtained, as mentioned in Paragraph 1.20 (page 5) of the Draft EIS. There are five planning actions necessary to complete at the City level. The sequence of City actions is:

1. General Plan Amendment
   a. EIR required
2. Rezoning per General Plan Amendment
3. Master Plan (based on regional center)
4. Precise Development Plans
5. Design Review.

The first action which actually indicates approval of a regional center by the City is the Master Plan.

Paragraph 6.06 (page 99) defines Local Authorization by mentioning the General Plan Amendment and Rezoning, and then mentions denial by Federal, State and/or local certification and/or authorization.

I tried to get this clarified for the City through the Regulatory Functions Branch, but was told that I could not get a written response unless it was through comments to the Draft EIS.

8 It is unclear what constitutes "Local Authorization" as mentioned in the above two draft EIS paragraphs. To clarify this for the

September 10, 1979
File: 751-020

Colonel John M. Adsit
Page 2

City, the developer, and others reading the EIS, we request that Local Authorization be defined. It may not be just at City level as one reading these paragraphs may interpret them.

Yours very truly,

M & M CONSULTANTS, INC.

Keith Hastings

Keith Hastings

KH/mr

ERNEST W. HAHN, INC.
200 CONTINENTAL BOULEVARD, EL SEGUNDO, CALIFORNIA 90245 • PHONE (213) 772-4200

September 7, 1979

U. S. Army Engineer District, San Francisco
211 Main Street
San Francisco, CA 94105

Reference: Novato Center
Draft Environmental Statement

Dear Mr. Cerese:

Following is a list of comments relative to the Draft Environmental Statement for Novato Center, dated July 1979.

1. Page a, Item 3, Comparison of Alternatives. Under Alternative 1, it is indicated that there would be no economic impact with the "No Project" Alternatives. We believe that not receiving any revenue from property tax and sales tax that the shopping center or any other development would produce should be a negative impact. Alternative 3 indicates no impact on vegetation and wildlife. The proximity of people and automobiles directly north of Lynwood Slough would undoubtedly have some negative impact on the wildlife.

1

2. Page d, Item K, Visual Quality. "Unmitigated" view of 44 acres of parking is an inaccurate term. 44 acres of parking is not visible from Highway 37 or 101. The view is broken by judicious placement and use of landscaping as well as by the building themselves.

2

3. Page d, Item 1, Community Cohesion. A beneficial impact is that potential shoppers need not leave the Novato area for goods and services not now available or for comparison shopping. A beneficial side effect would be the savings in gasoline by providing "close to home" shopping rather than traveling to San Rafael or San Francisco to shop in the large department stores.

3

4. Page e, Alternative #3. The reduced size of the project would generate less revenue and create fewer jobs than alternative 2.

4

5. Page 5, Item 1.14. It is possible that Novato Center, Inc. could purchase property at Hamilton but highly improbable that E. W. Hahn, Inc. would be a participant because of the timing and economic reasons outlined in the "Blue Ribbon Committee" report and included in response #8 in the final Environmental Impact Report.

5

RESPONSES TO COMMENTS BY ERNEST W. HAHN, INC. (7 September 1979)

1. The Comparison of Alternatives is based upon the impacts of each alternative upon the existing conditions at each of the study areas. Under Alternative #1, the site would continue to generate the same amount of tax revenue as it does at present. Thus there would be no significant change in its economic status.

We agree that the proximity of urban development directly north of the drainage channel would have a negative impact upon wildlife using the slough. A strip of vegetation planted as a buffer could minimize this impact.

2. The item has been changed.

3. Comment noted.

4. Alternative #3 as described in this ES would provide a regional shopping center of comparable size (gross leasable area) as Alternative #2R. It is only the geographic area covered by this alternative which would be reduced.

5. Comment noted. According to the Corps of Engineers, Environmental Quality Policy and Procedures (33 CFR 230, Appendix B, paragraph 14(b)(5)(b))" . . The EIS (or EIS Supplement) must address all the reasonable alternatives that go before the ultimate decision maker . . . In-depth evaluation will normally be limited to those reasonable alternatives which are both practical and . . . (iv) Reasonably foreseeable, although beyond both the capability of the applicant and outside the jurisdiction of the Corps of Engineers."

6. Comment noted.

7. The paragraph has been changed accordingly.

8. The paragraph has been deleted.

9. The paragraph has been changed accordingly.

10. These cost estimates were provided by the Novato Crime Prevention Department. Also the response to comment #14 in the Final EIR estimated police service costs at $175,705.

11. Comment noted.

12. Comment noted.

13. Alternative #3 includes a shopping center of comparable gross leasable space to Alternative #2R.

14. This line item has been deleted.

15. This information is included in the FES in pargraph 1.03.

6. Page 6, Item 1.26. The availability of alternative sites is discussed in the final E.I.R. under Response #8.

7. Page 67, Item 2.255. Alternative 2 would minimize auto travel to more distant department stores outside of the Novato area.

8. Page 68, Item 2.257. It is not anticipated that the southernmost hill on the site would be graded.

9. Page 68, Item 2.258. It should be noted that the shopping center will compete with only a small number of shops in the downtown area.

10. Page 79, Table 21. The cost for additional police services seems high based on the experience of existing operating centers.

11. Page 89, Item 2.341. Only a portion of the parking area would be visible from either 101 or 37. Visual screening has been provided by landscaping adjacent to the freeway and perimeter roads, and the parking areas are broken up by tree rows.

12. Page 89, Item 2.345. It would appear that areas for "passive recreation" would more readily be handled in projects for that specific purpose rather than as an adjunct to a shopping center where the primary reason for being there is shopping.

13. Page 93, Item 2.378. The need for department stores and comparison shopping has been established. Reduction in the number of department stores and size of the center could fragment the commercial retail into smaller community type centers or, in the alternative, continue to send residents out of the area for comparison shopping.

14. Page 94, Impacts. Alteration of views of the site from surrounding areas, indicates Alternative 2 as an adverse impact. The introduction of a well designed, well landscaped building onto a flat, barren site, split by railroad tracks, is not necessarily an adverse impact.

The Traffic Consultant for the developer, Donald Frischer & Associates, has indicated that their comments to the Draft Environmental Impact Report which appear in Volume 2: Comments and Responses of the Final Environmental Impact Report dated September 1979 are applicable to the Draft Environmental Statement. The comments relating to traffic are numbers 9, 10, 20, 21, 33, 54, 56, 57, 60, 62, 63, 64, 65, 69, 76, 86, 163.

15 Finally, the issue of Alternative 2 vs. Alternative 3 is discussed at length in the Final Environmental Impact Report under Response #8 (with asterisk) which addresses site configuration and access, visual, engineering and economic impacts.

Very truly yours,

ERNEST W. HAHN, INC.

Kenneth Roberts
Project Manager
Development Division

kr;jc
cc: Keith Hastings
Tom Crews
Dorothy Young

August 31, 1979

Department of the Army
San Francisco District
Corps of Engineers
211 Main Street
San Francisco, California 94105

Reference: SPNED-E/SPNCO-R
Novato Center Draft Environmental Statement

Colonel John M. Adsit,

I have completed my review of the referenced document regarding the proposed Novato, California shopping center and would like to submit the following comments and recommendations for your evaluation.

The proposed shopping center projects 2, 3, 4 and 5 present several major environmental problems which include seismic hazards, flooding, impaired aesthetics, increased traffic, impaired water and air quality and the destruction of flora and fauna. In addition, there will be a need for increased public service plus the problem of increased business competition for the local merchants.

To further describe the project problems, fifteen acres of oak woodland and eight acres of marshland will be lost. The benthic community will be destroyed. Alteration of the proposed site from open space to intensive urban use will impair the aesthetics. There will be a total loss of existing vegetation and wildlife. Vegetation will be destroyed. Wildlife will be displaced and undoubtedly perish. Vehicular traffic will increase due to customers utilizing the shopping center and deliveries of sales goods. The increased vehicular traffic will cause pollution to the air due to exhaust emissions. The same automobiles and trucks which will be travelling to the proposed shopping center polluting the air will also add increased noise problems to the surrounding community. The general aesthetic habit will change drastically from an open space enviornment to a conglomerate of concrete buildings, lightposts and rambling vehicles.

For all of the above reasons, I would, therefore, like to recommend a "NO PROJECT". If local government and some residents wish to have a larger shopping area, I would like to suggest that existing shops be remodelled or expanded to suit their needs. The creation of a new shopping complex will destroy open space and its inhabitants, pollute the environment and hinder the aesthetic pleasures of those residents who now enjoy natural views from their homesites. 1

In conclusion, Colonel Adsit, thank you for asking me to review the Novato Center Draft Environmental Statement. If I can be of assistance to you in the future, please feel free to contact me.

Sincerely,

Tom

Thomas M. Corneto

RESPONSES TO COMMENTS BY MR. TOM CORNETO (31 August 1979)

1. Comment noted.

August 31, 1979

NOVATO, CALIFORNIA

SHOPPING CENTER

Proposed Project	Seismic Hazards	Flooding Problems	Aesthetics Impaired	Increased Traffic	Impaired Water Quality	Impaired Air Quality	Increased Public Service	Business Competition Increase	Destruction of Flora and Fuana
Number 1	No Project	No Project	No Project	No Project	No Project	No Project	No Project	No Project	No Project
Number 2	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number 3	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number 4	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number 5	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

NOTE: All of the above data was extracted from the Novato Center Draft Environmental Statement (SPNED-E/SPNCO-R.

Tom Corneto
8-31-79

NOVATO CENTER

INDEX

NOVATO CENTER

INDEX
(Cont'd)

NOVATO CENTER

INDEX
(Cont'd)


MEL
8